Ontario Hydro

92-05492/

Memorandum to the Board of Directors

December 9, 1991

Update To The 1990 Long-Term Load Forecast

RECOMMENDATION: That the Update to the 1990 Long-Term Load Forecast be approved.

Reviewed by:

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Executive Summary

The Update to the 1990 Load Forecast (LF901210) was prepared for use in the Demand/Supply Re-integration study. This Update only addresses changes in the key input assumptions used in the 1990 Load Forecast. Assumptions for Ontario GDP, electricity prices and total system load factor have been updated and revised projections for the net load impact of fuel-switching (FS) and higher efficiency standards have been incorporated in the Primary Load Forecast. A more complete long-term load forecast will not be produced this year.

Relative to LF901210, the Update for Primary energy is 11 TW.h or 6.2% and 26 TW.h or 11.5% lower in the years 2000 and 2015 respectively. The reduction in the peak forecast is proportionately larger: 2.7 MW or 10% in 2000 and 7.0 MW or 18% in 2015. The change in the Peak demand in the year 2000 is due to a 1.5 GW reduction in the Basic, the addition of 1.3 GW of FS and 0.3 GW of electrical efficiency improvement (EEI), partially offset by a .25 GW cut in Load-Shifting (L-S) and a .1 GW drop in LD-NUGS. The change in year 2015 peak results from a 2.7 GW reduction in the Basic, the addition of 3.5 GW of FS, an extra 1 GW of EEI and small reductions in L-S and Load Displacement Non-Utility Generation (LD-NUGS).

The 1.5 GW or 4.8% decrease in year 2000 Basic peak is due to a 0.7% reduction in Ontario GDP, a 13% increase in average rates and a 1% increase in load factor. The Basic load impacts from these changes are roughly .6%, 3.2% and 1% respectively. In 2015, Basic peak is down 2.7 GW or 6.5%, due to a 2.1% reduction in Ontario GDP, a 9% increase in average rates and a 1% increase in load factor. These changes translate into roughly 2%, 3.5% and 1% reductions in Basic Load respectively.

The changes in projected demand management results attempt to reflect the intentions of the Ontario Government to promote aggressive efficiency standards and appropriate fuel choice in Ontario. While the direction has been fairly apparent since November 1990, the extent to which these measures will be pursued through legislation remains unclear. Should the regulatory support currently anticipated not materialize, alternative strategies to achieve Hydro's year 2000 demand management target of 3500 MW of EEI and FS have yet to be developed. Fuel switching contributes 1275 MW to load reduction in 2000 and 3645 MW by 2015. Through higher standards and supporting programs, EEI increases by 280 MW in 2000 and 700 MW in 2015 relative to LF901210. Load-shifting and load-displacement non-utility generation are projected to contribute slightly less than last year.

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1.0 Introduction

The Update to the 1990 Load Forecast was completed in October 1991 for use in the Demand/Supply Plan (D/SP) Re-integration Study. It incorporates actual values for 1990 and changes to the forecasts of major drivers of Basic and Primary Load. It is not, however, a complete new forecast.

In a year dominated by the D/SP Hearings, there was insufficient time to re-estimate the econometric model (EEMO) or to prepare an up-to-date end-use load forecast. As well, the demand management changes reflect only preliminary analysis of new Corporate goals. It is possible that further study may alter the premises on which the increased net impacts of electrical efficiency improvement (EEI) and fuel-switching (FS) were based. Some of these results depend on government regulations yet to be implemented or alternative programs yet to be conceptualized. Finally, the interaction between electricity price increases accounted for in the Basic Load Forecast, and the new estimates of attainable demand management has yet to be determined. Nonetheless, the Update is the most suitable forecast of primary load for planning purposes based on the information available as of September, 1991.

In February 1991, an update of the first few years of the Basic forecast was approved for planning purposes. To distinguish it from the Update to the full 1990 Long-Term Forecast presented here, it will be called the February 1991 Update.

This report focuses on the adjustments made to the 1990 Load Forecast which was documented in Load Forecast Report LF901210. It, and the numerous supporting documents filed as Exhibits at the D/SP Hearing, should be consulted for further details concerning the baseline projection underlying the Update.

The next section summarizes the changes to the GDP and energy price forecasts since September 1990. Their impact on Basic Energy is reported in Section 3, along with peak results based on an updated load factor estimate. Section 4 reviews the changes to the expected net load impact of demand management. Section 5 combines the results of the previous two sections to derive the changes to the Primary Load Forecast. Finally, Section 6 presents the 80% confidence bands for the updated forecast.

2.0 Economic Forecast

2.1 Change in Economic Outlook Since September 1990

Ontario was the most visible casualty of the 1990-91 Canadian recession. The severity of the losses rivalled those even of 1982. For 1991, the real dollar value of provincial GDP is estimated to be some 6% lower than that suggested in the September 1990 forecast. While a large portion of the shortfall occurred because of the greater than expected length and magnitude of the recession, the numbers also include fairly sizable data revisions associated with the rebasing of Ontario GDP to 1986 dollars from 1981 dollars.

Economic data released since last spring confirm that the recession is technically over and a somewhat shaky recovery is underway. However, that does not mean things have returned to normal. Growth is limited to only a few sectors and even there activity is very erratic from one month to the next.

Interest rates in both the United States and in Canada have been reduced to levels well below what was originally anticipated. Assuming such cuts do spur a turnaround in spending on big-ticket items such as cars by early 1992, Ontario will be in a position to outperform other Canadian provinces in 1992, 1993 and 1994. The current outlook calls for provincial growth to average 4% over the entire period 1991 to 1995. Even so, the value of Ontario GDP in 1995 will still be 4% below the forecast issued in September 1990.

Beyond 1995, provincial GDP growth is expected to recoup about half the ground lost in the first five years of the forecast. With no change in the fundamental determinants of long-run GDP for Ontario, it would have been reasonable for GDP to eventually recover to the level projected in the 1990 forecast. However, the September 1991 Long-Term Economic Outlook assumes greater costs associated with meeting future, more stringent environmental policies than were included in last year's forecast. The total reduction in productivity growth rates due to environmental mitigation measures is now 0.5% per year, up from 0.4% per year implicit in 1990's long-term forecast. The extra 0.1% per year reduction in productivity growth translates directly into lower GDP. By 2015, this cumulates to a 2.1% reduction in Ontario GDP relative to September 1990.

The major economic trends underlying the update to the 1990 Load Forecast are summarized below.

Real GDP growth in Ontario averages about 3.1% per year over the period 1990 to 2000 and about 2.8% per year over the period 1990 to 2015. Following trends in population growth, the economic growth rate is forecast to slow down steadily.

Ontario population will grow at an average annual rate of 1.3% to the year 2000, taking population to just over 11.1 million. Between 1990 and 2015 population is projected to grow at an average rate of 1.1% per year and reach 12.8 million.

Ontario labour force will grow at an average annual rate of 1.6% to the year 2000, when it will be over 6.2 million. Over the period to 2015, the average annual growth rate is 1.3% and the labour force reaches a level of 7.4 million.

Commercial floorspace (including apartments) will increase from its present level of 2.6 billion square feet to 3.1 billion square feet by 2000, an average annual rate of increase of 1.7%. By 2015 commercial floorspace increases to 3.6 billion square feet, an average annual growth rate of 1.3% a year from 1990.

Housing stock is projected to grow at 1.7% per annum to 2000, from 3.6 million in 1990 to 4.3 million in 2000. Between 1990 and 2015 housing stock is projected to grow at 1.4% per year and reaches 5.1 million units by 2015.

2.2 Changes in Energy Price Forecast

The real price of electricity is now forecast to increase about 25% in the first five years of the forecast, then stabilize for fourteen years before rising another 6% between 2009 and 2015. The 1990 forecast assumed a 10% increase between 1990 and 1995 followed by ten years of constant prices and a further 10% increase between 2005 and 2015. Overall, the real price of electricity is forecast to increase about 30% by 2015 compared to an increase of 20% in LF901210. The major factors causing the increase in electricity prices include: a lower inflation forecast, increased demand management programs, and increased non-utility generation levels. These impacts are partly offset in later years by the deferral of new generating facilities.

International and domestic crude oil and petroleum products price projections are almost unchanged from last year. The Canadian natural gas market has remained weak during the last few years and prices are expected to grow slightly more slowly around the turn of the century. However, by the end of the forecast period, prices are the same in real terms.

Table 2.1

Economic Outlook

Ontario Real GDP - $1986 Millions

	Sept 1990	Sept* 1991	Difference Sept 91/Sept 90
1989	235,146	230,677	-1.90
1990	236,322	229,293	-2.97
1991	240,576	225,624	-6.22
1992	249,958	234,424	-6.21
1993	258,706	243,801	-5.76
1994	266,468	254,869	-4.35
1995	276,594	265,064	-4.17
2000	319,092	311,783	-2.29
2005	364,557	357,598	-1.91
2010	414,475	406,171	-2.00
2015	466,654	457,080	-2.05

* Historical numbers revised.
Forecasts are from the Short-Term Economic Forecast, September 1990 and 1991.

Table 2.1.2

Real GDP Growth in Ontario

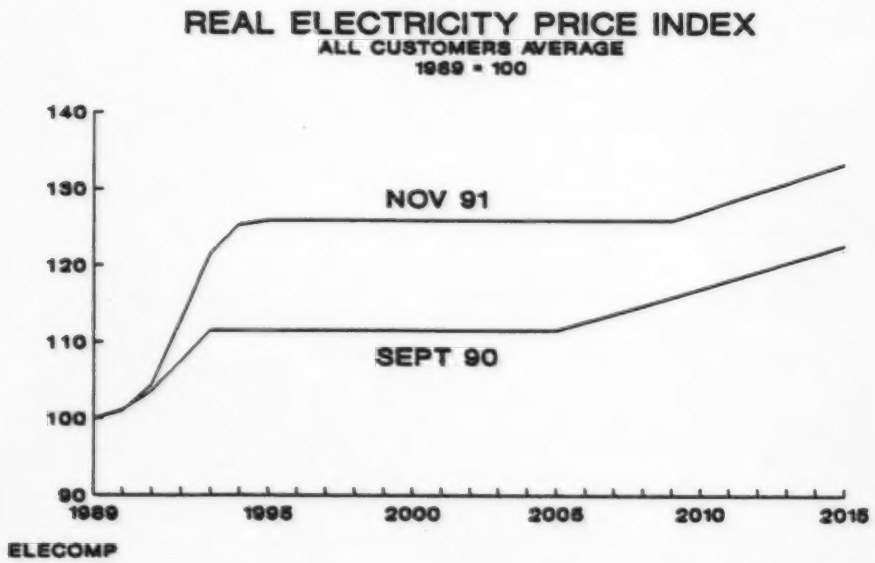
	Sept. 1990	Sept. 1991
1990	0.5	-0.6
1991	1.8	-1.8
1992	3.9	3.9
1993	3.5	4.0
1994	3.0	4.5
1995	3.8	4.0
2000	2.9	3.4
2005	2.7	2.8
2010	2.6	2.6
2015	2.4	2.4

Table 2.2 Ontario Wholesale Energy Prices

	Electricity (Index, 1990=100)			Natural Gas (1991 $/Mcf)		
	1990* Fall	1991** Fall	% Difference	1990 Fall	1991 Fall	% Difference
1990	100.0	100.0		2.71	2.68	-1.1
1995	110.3	124.6	13.0	3.16	3.19	0.9
2000	110.3	124.6	13.0	4.24	3.93	-7.3
2010	115.7	125.8	8.7	5.46	5.49	0.5
2015	121.3	131.9	8.7	5.82	5.78	-0.7
Growth Rates						
1990-1995	2.0	4.5		3.1	3.5	
1995-2000	0.0	0.0		6.1	4.3	
2000-2015	0.6	0.4		2.1	2.6	
1990-2015	0.8	1.1		3.1	3.1	

*Long-Range Financial Projection, Sept. 1990
**Energy Price Trend Report, Nov. 1991

CHART 2.2



3.0 Basic Load Forecast

3.1 Update Methodology

Due to the limited time available, it was not possible to produce a new long-term forecast in the usual way. This involves updating, re-estimating and calibrating the end-use models and econometric models, comparing results and applying judgement to produce a recommended forecast. Instead, it was decided that the update would simply be an adjustment to the 1990 recommended forecast based on the change in the results of the econometric model (EEMO). The changes were estimated by running EEMO with the 1991 forecasts of economic activity and energy prices as summarized in Section 2 and comparing the results with the 1990 equivalent. This was done in the following way.

First the model database was updated with actual values for 1990. Then, using the 1990 forecast of GDP and energy prices, and the equations estimated for the 1990 forecast, a revised 1990 forecast was produced for the period 1991 to 2015. Because there was no change to the equations, the elasticities of the model are the same as those estimated in 1990. Details of these were reported in the report "The 1990 Econometric Load Forecast" and are summarized below. Because of the lagged responses within EEMO, the full effects of changes in GDP and energy prices are not realized during the forecast period.

Table 3.1: 1990 EEMO Elasticities

	Own-Price of Electricity	Cross-Price of Electricity	Own-Price of Liquid Fuel	Output/ Income
Short-Run				
Residential	-0.13	0.03	-0.27	0.44
Commercial	-0.06	N.A.	-0.15	0.13
Industrial	-0.02	0.09	-0.12	0.75
Total	-0.07	0.04	-0.17	0.44
Long-Run				
Residential	-0.51	0.16	-0.30	1.04
Commercial	-0.46	N.A.	-0.69	1.18
Industrial	-0.30	-0.14	-0.35	1.00
Total	-0.42	-0.00	-0.42	1.08

The 'revised' 1990 results were compared with those produced by running the model over the same period with the set of 1991 forecasts of the explanatory variables. The percentage difference for each year for each sector was then applied to the 1990 recommended forecast.

The resulting forecast for annual energy is presented in the following sections. The peak forecast was derived from the energy forecast using the updated load factors shown in Table 3.2.3.

3.2 Changes to the Basic Load Forecast

For the period 1991 to 1996, the updated forecast of Basic energy is 2.9% lower than LF901210 on average due to the effects of both lower GDP and higher electricity prices (see Tables 2.1 and 2.2.). Compared to the revised load forecast prepared for the Ontario Energy Board in February, 1991 (HR-20),

however, the new forecast is unchanged up to 1993 and for the years 1994 to 1996 is about 1.1% lower on average. In 1996, the updated energy forecast is 28.5 TW.h compared to 29.4 TW.h in LF901210 and 29.3 TW.h in the HR-20 update.

In the long-term, the Basic energy forecast is reduced by about 4.8% on average compared to the 1990 forecast, reflecting the continued impact of higher electricity prices and lower GDP. In the year 2000, Basic energy is down 3.8% or 7.1 TW.h due to a 0.7% decrease in Ontario GDP and a 13% increase in average electricity rates. The impacts of these changes on Basic energy are roughly 0.6% and 3.2% respectively. In 2015, Basic energy is down 13.8 TW.h or 5.5%, due to a 2.1% reduction in Ontario GDP, and a 9% increase in average rates. These changes produce roughly 2% and 3.5% reductions in Basic energy. The average growth rate of Basic energy is 1.9% a year between 2000 and 2015, compared to 2% in LF901210. Between 1990 and 2015 the average annual growth rate of Basic energy is 2.2% per year compared to 2.3% per year for the 1990 forecast.

CHART 3.2.1

BASIC ENERGY FORECAST

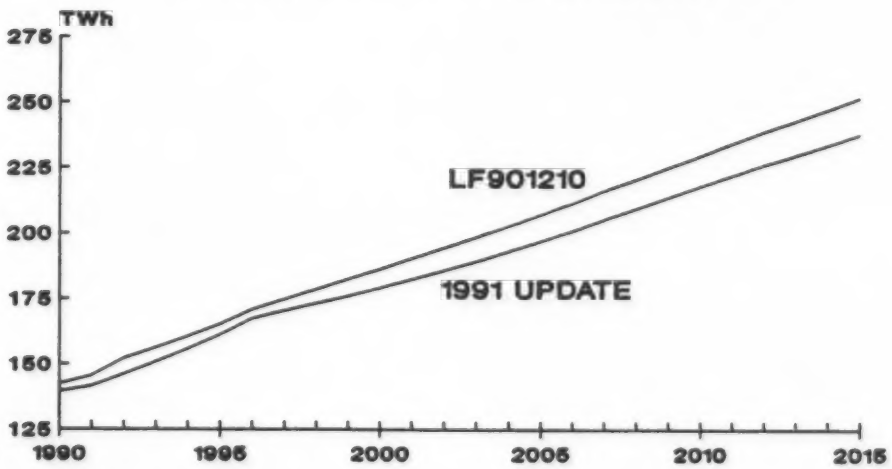
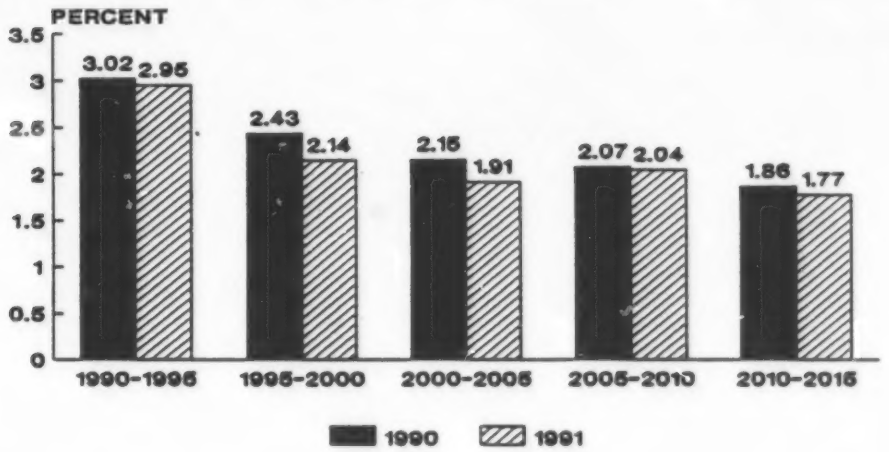
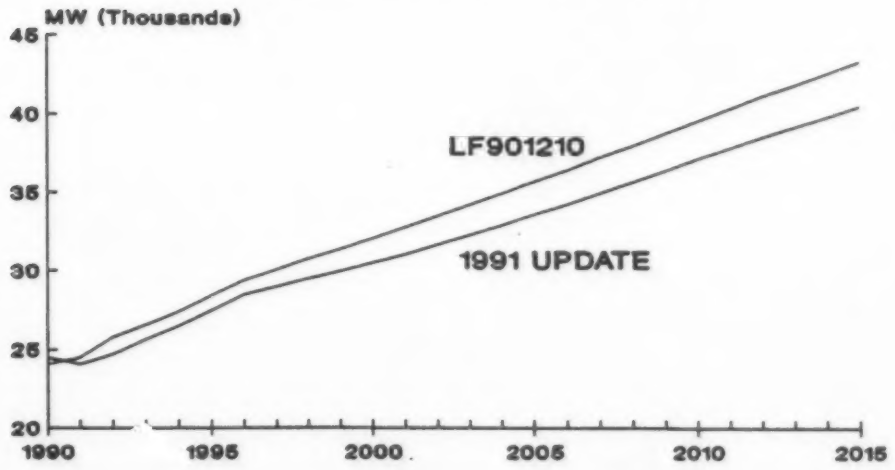


CHART 3.2.2
GROWTH RATE OF BASIC ENERGY
1991 UPDATE VS LF901210



Because the Basic load factor from the survey of Ontario Hydro customers is slightly higher than that contained in LF901210, Basic peak is reduced more than energy over both the short- and the long-terms. By 2015, Basic peak is 6.5% lower than the 1990 forecast compared to a reduction of 5.5% for energy.

CHART 3.2.3
BASIC PEAK FORECAST



The impact of government regulations and standards on the Basic load forecast is the same as LF901210. The 1990 Basic load forecast included the estimated impact of well-defined efficiency standards coming into effect by 1994. This impact was about 0.7% of Basic peak. One scenario of the extension of efficiency standards beyond 1994 is included in the update to the Primary load forecast. When these standards become much more precise they too will be built in to the Basic Load Forecast.

Table 3.2.1: Basic Load Forecast Comparison - Short-Term

December 1-Hour Peak - GW

Year	Load Forecast 901210	October 1991 Update	Difference GW	Difference %	Feb 1991 Update to 901210	October 1991 Update	Difference GW	Difference %
1990	24.06	24.49*	0.43	1.8	24.49*	24.49*	0.00	0.0
1991	24.48	24.04	-0.44	-1.8	23.90	24.04	0.14	0.6
1992	25.77	24.70	-1.07	-4.2	24.77	24.70	-0.07	-0.3
1993	26.58	25.64	-0.94	-3.5	25.67	25.64	-0.03	-0.1
1994	27.40	26.49	-0.91	-3.3	26.78	26.49	-0.29	-1.1
1995	28.44	27.46	-0.98	-3.4	28.07	27.46	-0.61	-2.2
1996	29.41	28.51	-0.90	-3.1	29.30	28.51	-0.79	-2.7
Growth Rates								
1990-1995	3.4	2.3			2.8	2.3		
1990-1996	3.4	2.6			3.0	2.6		

Annual Energy - TW.h

Year	Load Forecast 901210	October 1991 Update	Difference TW.h	Difference %	Feb 1991 Update to 901210	October 1991 Update	Difference TW.h	Difference %
1990	142.41	139.37*	-3.04	-2.1	139.37*	139.37*	0.00	0.0
1991	145.33	141.43	-3.90	-2.7	141.45	141.43	-0.02	-0.0
1992	152.16	146.06	-6.10	-4.0	146.08	146.06	-0.02	-0.0
1993	156.14	150.76	-5.38	-3.4	150.78	150.76	-0.01	-0.0
1994	160.45	155.74	-4.71	-2.9	156.81	155.74	-1.07	-0.7
1995	165.28	161.19	-4.09	-2.5	163.09	161.19	-1.90	-1.2
1996	170.91	167.45	-3.46	-2.0	170.07	167.45	-2.62	-1.5
Growth Rates								
1990-1995	3.0	3.0			3.2	3.0		
1990-1996	3.1	3.1			3.4	3.1		

* Weather-Corrected Actual

Table 3.2.2: Basic Load Forecast Comparison - Long-Term

	December One-Hour Peak - GW				Annual Energy - TW.h			
	Load Forecast	October 1991	Difference		Load Forecast	October 1991	Difference	
Year	901210	Update	GW	%	901210	Update	TW.h	%
2000	32.07	30.52	-1.55	-4.8	186.33	179.24	-7.09	-3.8
2005	35.67	33.55	-2.12	-5.9	207.25	197.03	-10.21	-4.9
2010	39.51	37.11	-2.40	-6.1	229.55	217.93	-11.62	-5.1
2015	43.32	40.50	-2.82	-6.5	251.71	237.89	-13.83	-5.5
Growth Rates								
1990-2000	2.9	2.2			2.7	2.5		
1990-2005	2.7	2.1			2.5	2.3		
1990-2010	2.5	2.1			2.4	2.3		
1990-2015	2.4	2.0			2.3	2.2		
2000-2015	2.0	1.9			2.0	1.9		

Table 3.2.3 Basic Load Factor Comparison

	October 1991 Update			LF901210		
	Energy	Peak*	L.F.	Energy	Peak	L.F.
Year	(TW.h)	(MW)	(%)	(TW.h)	(MW)	(%)
Short-Term						
1991	141.427	24036	67.2	145.330	24483	67.8
1992	146.059	24704	67.5	152.160	25765	67.4
1993	150.762	25635	67.1	156.137	26577	67.1
1994	155.739	26488	67.1	160.446	27400	66.8
1995	161.190	27459	67.0	165.281	28442	66.3
1996	167.450	28514	67.0	170.908	29413	66.3
Long-Term						
2000	179.243	30519	67.0	186.330	32068	66.3
2005	197.032	33548	67.0	207.246	35668	66.3
2010	217.934	37107	67.0	229.552	39507	66.3
2015	237.888	40504	67.0	251.713	43320	66.3

*December 1-Hour Peak MW

4.0 The Net Load Impact of Demand Management and Load Displacement Non-Utility Generation

In anticipation of legislative approval for changes to the Power Corporation Act tabled in June 1991, Ontario Hydro prepared two studies related to Fuel-Switching (FS). One, entitled 'Fuel-Switching Potential in Ontario by Year 2000', addressed FS Potential and its overlap with EEI. Its results were used in the second paper entitled 'Scenarios for Demand Management including Fuel-Switching and Standards', to develop five scenarios for attainable FS by the year 2000. Both reports were prepared in July 1991 and were filed with the Environmental Assessment Board Hearing into the D/SP (as Exhibits 257 and 258 respectively). The main body of the text of the 'Scenarios' report is provided in Appendix II as background information. Copies of both reports may be obtained from the Economics and Forecasts Division.

In August 1991, the Corporation revised its target for load reduction from 2000 MW for EEI by the year 2000 to 3500 MW by the year 2000 for EEI and FS combined. Scenario C, as described in Appendix II, is one way of achieving that target. For the purpose of the Update, annual values for EEI and FS were required. As alternative ways of achieving the target have yet to be assessed, the logic underlying Scenario C was used to extend the EEI and FS forecasts to 2015.

Scenario C applied the penetration rates expected for EEI programs in the 1990 forecast to FS in existing houses and commercial buildings. Where FS occurs, the potential for EEI in those structures is reduced appropriately. It is assumed that the introduction of FS does not increase the proportion of houses taking up Hydro programs, only alters the decision in favour of a demand management option with greater savings per unit. The average penetration rate is about 3% of the existing stock per year. Programs to encourage FS are assumed to begin in 1992.

Scenario C assumes that by 1995 the government mandates that electricity not be used for space-heating in new residential and commercial buildings in areas where natural gas is available. New residential electric water-heating would also be ruled out. With regulation of appropriate fuel choice, effective penetration of FS in the new market would be 100%.

The estimated impact of FS is 375 MW by 1995, 1275 MW by 2000 and 3645 MW by 2015.

Scenario C also postulates the introduction of higher efficiency standards in electrical end-uses where standard writing is feasible. The standards would be complemented by aggressive Hydro programs to capture much of the remaining economic potential for efficiency improvement. In end-uses not amenable to standards, no increase in penetration rate was considered feasible. Also, it is important to note that EEI potential in space- and water-heating is reduced by the introduction of FS, as described in 'Fuel Switching Potential in Ontario by Year 2000'. As a result EEI increases from 1947 MW in 2000 as in LF901210, to 2225 MW in 2000 in the Update. By 2015, EEI is 4400 MW, up about 700 MW from last year.

The forecast impact of time-of-use rates is lower than in the previous year's forecast. By 1996, the load-shifting (L-S) program is expected to contribute 160 MW less than in the 1990 forecast and by 2000 the difference is 250 MW. The L-S program eventually does achieve most of the system potential so that by 2015 the forecast is only 90 MW below the level given in LF901210.

The net load impact of load displacement NUG has been reduced 79 MW in 2000 and 93 MW in 2015. For this year's forecast, the annual growth rates of load displacement NUG's is the same as that used last year but applied to the lower 1996 base.

The net effect of changes to demand management and load displacement programs is to increase their total impact by about 650 MW in 1996, 1224 MW in 2000 and 4147 MW in 2015 relative to the 1990 projection. The total impact of all aspects of demand management included in the primary load forecast is 4419 MW in 2000 and 9540 MW in 2015. The total demand management impact would include Capacity Interruptible Loads as delivered through Discount Demand Service. This value is now about 5000 MW in the year 2000.

The approach to achieving higher levels of load reduction taken in Scenario C may not be desirable from the perspective of the Ontario government. The amount of EEI and FS which is attributed to government regulation is summarized in Table 4.2. By 2015, alternative means of delivering 2420 MW would need to be found were standards and fuel choice regulations in Scenario C not implemented. This assumes programs are introduced in these areas and these programs have the same penetration rates as apply to the corresponding existing market.

Table 4.1: Comparison of Cumulative Net Load Impact of Demand-Side Management and Load Displacement, October 1991 Update vs LF901210 (December Peak MW)

	October 1991 Update					LF901210				
Year	L-S*	LD**	EEI***	FS****	Total	L-S	LD	EEI	Total	Difference in Total
Short-Term										
1991	174	60	334	0	568	214	70	277	561	7
1992	221	37	526	24	808	289	89	419	797	11
1993	276	48	714	74	1112	367	117	568	1052	60
1994	334	83	869	169	1455	448	133	722	1303	152
1995	397	106	1112	376	1991	532	138	883	1553	438
1996	461	116	1347	574	2498	622	159	1069	1850	648
Long-Term										
2000	750	169	2225	1275	4419	1000	248	1947	3195	1224
2005	1039	189	3240	2085	6553	1140	265	2750	4155	2398
2010	1193	190	3860	2870	8113	1265	279	3253	4797	3316
2015	1300	200	4395	3645	9540	1390	293	3710	5393	4147

* Load-Shifting
** Load Displacement Non-Utility Generation
*** Electrical Efficiency Improvement Program
**** Fuel-Switching

Table 4.2 Demand Management Impact Attributed to Government Regulations (MW)

	EEI	FS	Total
1995	114	117	231
2000	480	480	960
2015	1160	1260	2420

5.0 Primary Load Forecast

5.1 Highlights

The updated Primary Load Forecast for energy is 6.2% and 11.5% lower in the years 2000 and 2015 respectively than the 1990 Primary Load Forecast (LF901210). There is more change in the peak forecast, which is down 9.6% and 18.4% respectively in 2000 and 2015, than in the energy forecast.

The 1990 Primary energy forecast averages 1.5% annual growth from 1990 to 2015, down from 2.0% in the 1990 Load Forecast. Primary peak grows at 1.0% per year to 2015, down from 1.9% in LF901210.

The major change in the Primary load forecast is the inclusion of FS programs. By the year 2000 they are expected to contribute almost 30% (1275 MW) of the total demand management effort, increasing to almost 40% (3645 MW) by 2015.

The net peak load impacts of the Electrical Efficiency Improvement (EEI) and Load-shifting (L-S) Programs move in opposite directions in the first part of the forecast. By the year 2000, the reduction in L-S offsets the increase in EEI so that the total impact on peak demand is almost unchanged. Between 2000 and 2015, increases in EEI outweigh the small changes in L-S with the result that in total these programs reduce primary peak demand by about 600 MW more than the 1990 forecast. Throughout the forecast period, the impact of program-driven Load Displacement Non-Utility Generation (LD-NUG) is down very slightly from last year.

Table 5.1: Primary Load Forecast - 1991 Update

Year	December 1-Hour Peak MW	Annual Growth* MW	Annual Growth* %	Annual Energy TW.h	Annual Growth* TW.h	Annual Growth* %
Short-Term						
1990(W/CA)	24166	798	3.4	138.5	-1.2	-0.9
1991	23468	-698	-2.4	139.7	1.2	0.9
1992	23896	428	1.8	143.4	3.7	2.6
1993	24523	627	2.6	147.0	3.6	2.5
1994	25033	510	2.1	150.5	3.5	2.4
1995	25468	435	1.7	154.3	3.8	2.5
1996	26016	548	2.2	158.6	4.3	2.8
Long-Term						
2000	26100	21	0.1	163.1	1.1	0.7
2005	26995	179	0.7	172.9	2.0	1.2
2010	28994	400	1.4	188.0	3.0	1.7
2015	30964	394	1.3	202.9	3.0	1.5

Average Annual Growth

Period	MW	%	TW.h	%
1990-1995	260	1.06	3.2	2.19
1990-2000	193	0.77	2.5	1.65
1990-2005	189	0.74	2.3	1.49
1990-2010	241	0.91	2.5	1.54
1990-2015	272	1.00	2.6	1.54

W/CA - Weather-Corrected Actual
* Values for long term are for five-year period ending in year specified

5.2 Comparison with Load Forecast LF901210 - Primary Energy Demand

The updated Primary energy forecast is about 7.5% lower on average than the 1990 forecast. By 2015 primary energy is 26.4 TW.h lower than last year. Of this, 13.8 TW.h (52%) is due to the decrease in the Basic forecast, 2.8 TW.h (10%) comes from the increase in the EEI forecast and 10.5 TW.h (40%) is due to the impact of FS. The balance is a small offsetting impact due to the decrease in load-displacement generation. The updated Primary peak forecast is reduced more relative to the 1990 peak forecast than is the energy forecast. By 2015 peak demand is 7 GW lower than last year. Of this, 2.8 GW is due to the reduction in the Basic forecast, 3.6 GW to FS and 1.0 to EEI, offset 0.2 GW by reductions in L-S and LD-NUGS.

Table 5.2.1: Primary Load Forecast Comparison - Short-Term

December 1-Hour Peak - MW

Year	Load Forecast 901210	October 1991 Update	Difference MW	Difference %	Feb 1991 Update to 901210	October 1991 Update	Difference MW	Difference %
1990	23704	24166	462.00	1.9	24166	24166	0.00	0.0
1991	23922	23468	-454.00	-1.9	23361	23468	107.00	0.5
1992	24968	23897	-1071.00	-4.3	23992	23897	-95.00	-0.4
1993	25525	24523	-1002.00	-3.9	24624	24523	-101.00	-0.4
1994	26097	25033	-1064.00	-4.1	25480	25033	-447.00	-1.8
1995	26889	25468	-1421.00	-5.3	26499	25468	-1031.00	-3.9
1996	27563	26016	-1547.00	-5.6	27441	26016	-1425.00	-5.2
Growth Rates								
1990-1995	2.6	1.1			1.9	1.1		
1990-1996	2.5	1.2			2.1	1.2		

Annual Energy - TW.h

Year	Load Forecast 901210	October 1991 Update	Difference TW.h	Difference %	Feb 1991 Update to 901210	October 1991 Update	Difference TW.h	Difference %
1990	141.42	138.49	-2.94	-2.1	4138.49	138.49	0.00	0.0
1991	143.52	139.73	-3.79	-2.6	139.75	139.73	-0.02	-0.0
1992	149.44	143.44	-6.00	-4.0	143.41	143.44	0.03	0.0
1993	152.42	146.92	-5.49	-3.6	147.01	146.92	-0.09	-0.1
1994	155.79	150.47	-5.32	-3.4	151.98	150.47	-1.50	-1.0
1995	159.75	154.31	-5.44	-3.4	157.18	154.31	-2.87	-1.8
1996	163.84	158.58	-5.26	-3.2	163.00	158.58	-4.42	-2.7
Growth Rates								
1990-1995	2.5	2.2			2.6	2.2		
1990-1996	2.5	2.3			2.8	2.3		

Table 5.2.2: Primary Load Forecast Comparison - Long-Term

Year	December 1-Hour Peak - MW				Annual Energy - TW.h			
	Load Forecast 901210	October 1991 Update	Difference MW	%	Load Forecast 901210	October 1991 Update	Difference TW.h	%
2000	28872	26100	-2772	-9.6	173.9	163.1	-10.8	-6.2
2005	31512	26995	-4517	-14.3	190.3	172.9	-17.4	-9.1
2010	34710	28994	-5716	-16.5	209.7	188.0	-21.7	-10.3
2015	37927	30964	-6963	-18.4	229.4	202.9	-26.4	-11.5
Growth Rates								
1990-2000	2.0	0.8			2.1	1.6		
1990-2005	1.9	0.7			2.0	1.5		
1990-2010	1.9	0.9			2.0	1.5		
1990-2015	1.9	1.0			2.0	1.5		
2000-2015	2.0	1.9			2.0	1.9		

5.3 Derivation of the Primary Load Forecast from the Basic Load Forecast

The Basic Load Forecast takes into account all the factors affecting the future demand for electric power and energy except those activities which Hydro may undertake in future to influence the amount and timing of electricity demands on Ontario Hydro. As such, it includes the impact of known government regulations and standards concerning energy use. The Primary Load Forecast remains the forecast of the electric power and energy which Ontario Hydro must generate or purchase to meet the electricity demand of its customers in Ontario. It is derived by subtracting the expected future net impact of Electrical Efficiency Improvement (EEI), Load Shifting (L-S) Fuel-Switching (FS) and Load Displacement Non-Utility Generation (LD-NUGs) from the Basic Load Forecast. The net impact on load of these programs may be due to direct financial incentives or other means by which Ontario Hydro incurs costs to provide a targeted benefit to customers (e.g. customized information such as energy audits).

The net load impact of Hydro's programs is expected to reduce peak power requirements in the year 2000 by 14.5%. Their 4.4 GW contribution by the year 2000 represents about 73% of the 6 GW increase in peak demand forecasted between 1990 and 2000. The corresponding figures for energy are lower as L-S programs are currently assumed to have no energy impact and FS is a relatively low load factor load. Basic energy requirements are reduced by 16.2 TW.h or 9%. This is 40% of the 40 TW.h growth in basic energy forecast by 2000.

Table 5.3.1: 1991 Load Forecast Update - Primary vs Basic

Annual Energy - GW.h

Year	Basic	Impact of Incentives				Primary	% Diff
		EEI	FS	LD-NUG	Total		
Short-Term							
1990(W/CA)	139367	537	0	343	880	138487	-0.6
1991	141426	1256	0	438	1695	139731	-1.2
1992	146059	2320	28	273	2621	143438	-1.8
1993	150762	3351	131	357	3839	146924	-2.5
1994	155739	4310	337	618	5264	150474	-3.4
1995	161190	5331	761	793	6885	154305	-4.3
1996	167450	6621	1384	863	8868	158583	-5.3
Long-Term							
2000	179243	11345	3566	1257	16168	163075	-9.0
2005	197032	16839	5957	1343	24139	172893	-12.3
2010	217934	20255	8249	1415	29919	188015	-13.7
2015	237888	22986	10497	1486	34970	202918	-14.7
Growth Rates							
1990-1995	3.0					2.2	
1990-2000	2.5					1.6	
1990-2010	2.3					1.5	
1990-2015	2.2					1.5	
2000-2015	1.9					1.5	

(W/CA): Weather-Corrected Actual

CHART 5.3.1
1991 FORECAST UPDATE
COMPARISON OF BASIC & PRIMARY ENERGY

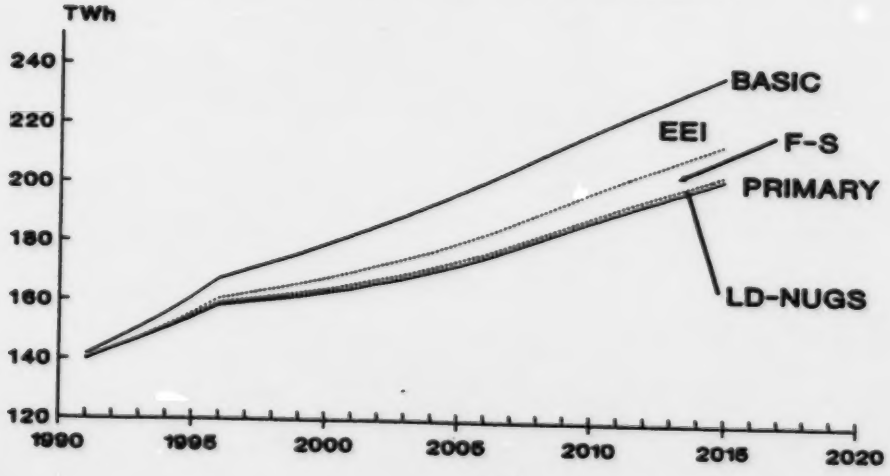


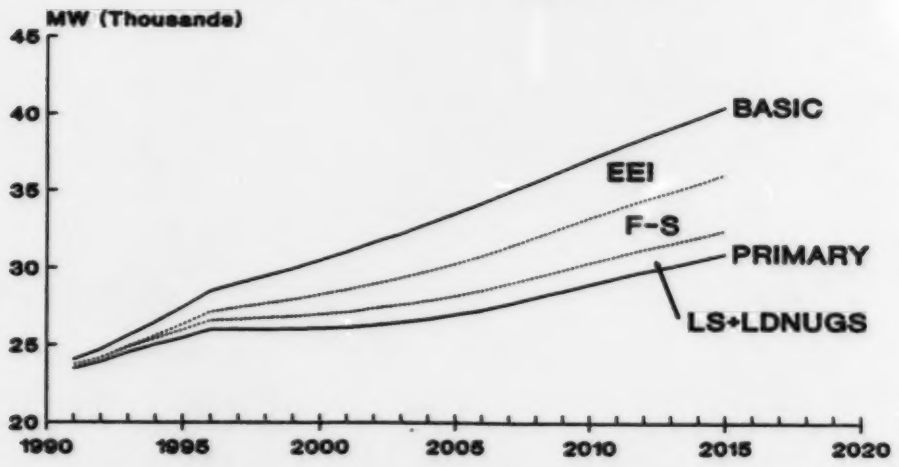
Table 5.3.2: 1991 Load Forecast Update - Primary vs Basic

Annual or December Peak MW

Year	Basic	Impact of Incentives EEI	L-S	FS	LD-NUG	Total	Primary	% Diff
Short-Term								
1990(W/CA)	24488	147	116	0	59	322	24166	-1.3
1991	24036	334	174	0	60	568	23468	-2.4
1992	24704	526	221	24	37	808	23896	-3.3
1993	25635	714	276	74	48	1112	24523	-4.3
1994	26488	869	334	169	83	1455	25033	-5.5
1995	27459	1112	397	376	106	1991	25468	-7.3
1996	28514	1347	461	574	116	2498	26016	-8.8
Long-Term								
2000	30519	2225	750	1275	169	4419	26100	-14.5
2005	33548	3240	1039	2085	189	6553	26995	-19.5
2010	37107	3860	1193	2870	190	8113	28994	-21.9
2015	40504	4395	1300	3645	200	9540	30964	-23.6
Growth Rates								
1990-1995	2.3						1.1	
1990-2000	2.2						0.8	
1990-2010	2.1						0.9	
1990-2015	2.0						1.0	
2000-2015	1.9						1.1	

(W/CA): Weather-Corrected Actual

CHART 5.3.2
1991 FORECAST UPDATE
COMPARISON OF BASIC & PRIMARY PEAK



6.0 Load Forecast Uncertainty

The methodology underlying the estimation of the probability distribution associated with the load forecast is unchanged from the May 1991 revision to the LF901210 distribution. Up to 2009, the probability distribution used in 1990 was simply moved forward one year and applied in percent terms to the updated Basic forecast. Beyond 2009, however, the percentage bandwidth is held constant (rather than closing in slightly as was the case in 1990) in keeping with the revision made in May, 1991. This change was made so that the bandwidth would more properly reflect the nature of forecast uncertainty in the long-term.

The distribution for the Basic peak load forecast was derived in the same manner as used last year; a constant load factor was applied to the energy distribution.

The distributions for Primary energy and peak were derived by deducting the projected total of demand management and load displacement impacts from their respective Basic distributions. Given that Ontario Hydro has insufficient experience with demand management programs to draw inferences about the uncertainty in their results, simulation studies were used to suggest that this straightforward approach would provide a reasonable guide to uncertainty in the Primary load forecast.

Details of the simulation of uncertainty in the Primary load forecast are provided in the report "Uncertainty Bands for Primary Energy and Peak Forecasts under Alternative Assumptions". The approach used in that study was to simulate the effects on uncertainty in the Primary load of uncertainty in both the potential for, and penetration rate of, demand management. The study showed that the positive correlation between demand management potential and economic growth, through the relationship between economic growth and capital stock, tends to reduce the size of the Primary band compared to the Basic band. However, this effect is offset by the uncertainty in the forecast penetration rate of demand management programs. As a result, the simulations suggest a Primary Band which is about the same size in absolute terms as the Basic Band. Because the Primary median is lower than the Basic median, the Primary band is wider in percentage terms than that for the Basic forecast. It is important to realize that despite the constant difference between the Basic and Primary Distributions the approach taken does reflect uncertainty in the penetration rate of demand management programs. The uncertainty Bands for energy and peak are shown in the following tables.

For both the Basic and Primary forecast the size of the bandwidth around the load forecast, relative to the median, is similar, in absolute terms to the May 1991 revision to the 1990 band. This is about 52 TW.h in 2000 and 98 TW.h in 2015, compared to 54 TW.h and 103 TW.h respectively in the 1990 forecast band. Because of the reduction in the Primary median forecast due to the effects Fuel-Switching (FS) and higher EEI, the Primary band is wider in percentage terms for the updated forecast. In the year 2000, this difference is quite small, 34% for the updated forecast compared to 32% last year; but, by 2015 this widens to 54% for the update against 47% for the 1990 band. As an illustration of this change, the current Fuel-Switching (FS) forecast was deducted from the 1990 band (Chart 6.2). In that case, the Primary percentage bandwidth is similar to the updated band and reaches 52% of the median by 2015. The flatter slope of the primary forecast means that the band is "wider" on the horizontal (time) scale than was the case last year. In Chart 6.1, for example, the high (90%) point in the 1990 band for the year 1996 corresponded to the median in about 2004. In the updated forecast, however, the 1996 level of the high band is not reached in the median forecast until about 2010.

Table 6.1: Uncertainty Band for Annual Basic Energy (TW.h)

Year	Lower (10%)	Forecast (50%)	Upper (90%)
1990 (Actual)		139.4	
1991	138.3	141.4	144.9
1992	140.1	146.1	152.2
1993	141.5	150.8	160.3
1994	143.5	155.8	167.3
1995	146.2	161.2	177.2
1996	151.9	167.5	185.5
2000	153.4	179.2	205.4
2005	160.1	197.0	239.3
2010	177.7	217.9	267.1
2015	194.0	237.9	291.5
Growth Rates			
1990-1995	1.0	3.0	4.9
1990-2000	1.0	2.5	4.0
1990-2005	0.9	2.3	3.7
1990-2010	1.2	2.3	3.3
1990-2015	1.3	2.2	3.0

Table 6.2: Uncertainty Band for 1-Hour Basic Peak (GW)

Year	Lower (10%)	Forecast (50%)	Upper (90%)
1990 (Actual)		24.5	
1991	23.5	24.0	24.6
1992	23.7	24.7	25.7
1993	24.1	25.6	27.3
1994	24.4	26.5	28.5
1995	24.9	27.5	30.2
1996	25.9	28.5	31.6
2000	26.1	30.5	35.0
2005	27.3	33.5	40.8
2010	30.3	37.1	45.5
2015	33.0	40.5	49.6
Growth Rates			
1990-1995	0.3	2.3	4.3
1990-2000	0.6	2.2	3.6
1990-2005	0.7	2.1	3.5
1990-2010	1.1	2.1	3.1
1990-2015	1.2	2.0	2.9

Table 6.3: Uncertainty Band for Annual Primary Energy (TW.h)

Year	Lower (10%)	Forecast (50%)	Upper (90%)
1990 (Actual)		138.5	
1991	136.6	139.8	143.2
1992	137.5	143.5	149.6
1993	137.7	146.9	156.5
1994	138.2	150.5	162.1
1995	139.3	154.3	170.3
1996	143.0	158.6	176.6
2000	137.2	163.1	189.2
2005	136.0	172.9	215.2
2010	147.8	188.0	237.2
2015	159.0	202.9	256.6
Growth Rates			
1990-1995	0.1	2.2	4.2
1990-2000	-0.0	1.7	3.2
1990-2005	-0.0	1.5	3.0
1990-2010	0.3	1.5	2.7
1990-2015	0.6	1.5	2.5

Table 6.4: Uncertainty Band for 1-Hour Primary Peak (GW)

Year	Lower (10%)	Forecast (50%)	Upper (90%)
1990 (Actual)		24.2	
1991	22.9	23.5	24.1
1992	22.9	23.9	24.9
1993	23.0	24.5	26.1
1994	22.9	25.0	27.0
1995	22.9	25.5	28.2
1996	23.4	26.0	29.1
2000	21.7	26.1	30.6
2005	20.7	27.0	34.2
2010	22.1	29.0	37.4
2015	23.5	31.0	40.1
Growth Rates			
1990-1995	-1.1	1.0	3.1
1990-2000	-1.1	0.8	2.4
1990-2005	-1.0	0.7	2.3
1990-2010	-0.4	0.9	2.2
1990-2015	-0.1	1.0	2.0

CHART 6.1
PRIMARY-PEAK UNCERTAINTY BAND: 90 VS 91

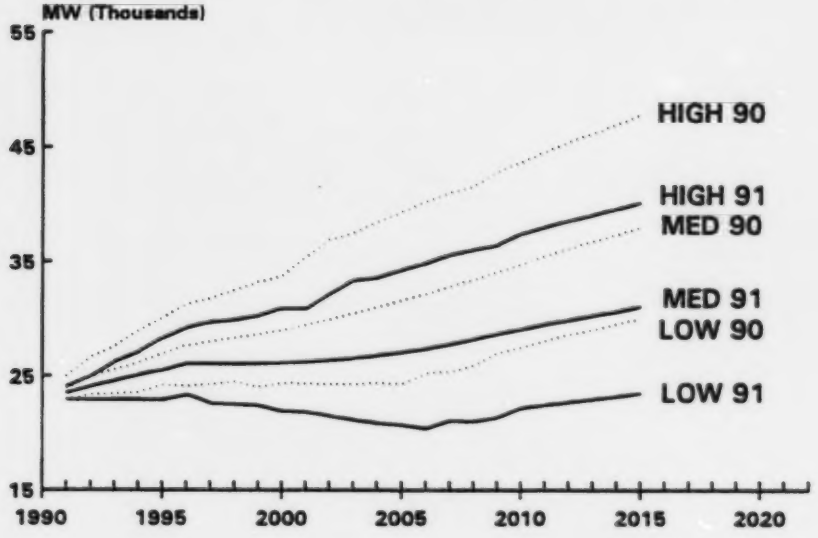
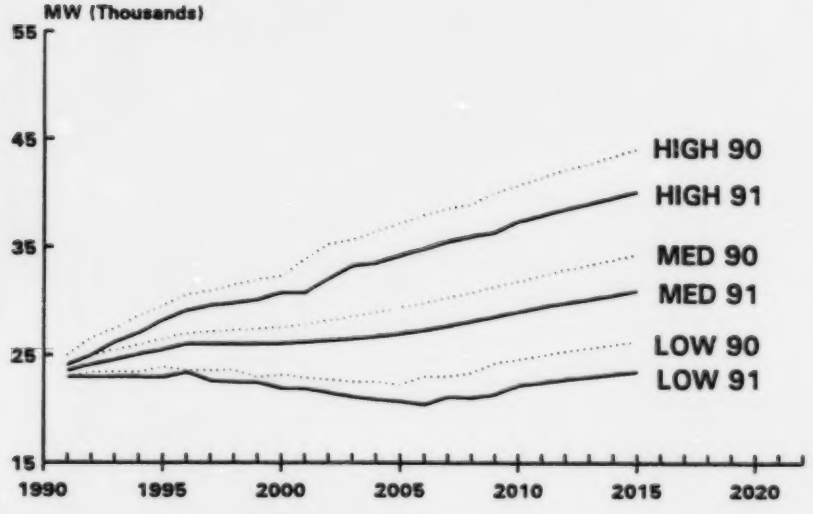


CHART 6.2
PRIMARY-PEAK UNCERTAINTY BAND:
1990 WITH FUEL SWITCHING VS 1991



APPENDIX I

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS

(MONTHLY, INCLUDING COMPONENTS)

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

October 31,1991

1991	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOTAL
BASIC 20 Min PEAK MW	24017.0	22943.0	22063.0	19840.0	18612.0	19520.0	20056.0	20055.0	18930.0	19931.0	22031.0	24214.0	21017.7
BASIC 1 hr PEAK MW	23757.0	22780.0	21865.0	19665.0	18454.0	19389.0	19937.0	19936.0	18756.0	19702.0	21816.0	24036.0	20841.1
BASIC ENERGY Gwh	13877.0	12321.0	12592.0	10983.0	10722.0	10691.0	11257.0	11186.0	10661.0	11488.0	12150.0	13498.0	141426.0
BASIC LF - 20 Min	77.7	79.9	76.7	76.9	77.4	76.1	75.4	75.0	78.2	77.5	76.6	74.9	76.8
BASIC LF - 1 hr	78.5	80.5	77.4	77.6	78.1	76.6	75.9	75.4	78.9	78.4	77.4	75.5	77.5
EEI MW	154.7	162.3	170.2	178.0	168.7	175.8	189.7	203.6	217.7	271.5	302.8	334.0	210.8
FS MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOU MW	120.8	125.7	130.5	135.3	140.2	145.0	149.8	154.7	159.5	164.3	169.2	174.0	147.4
EEI Gwh	78.2	73.6	84.9	85.6	86.8	87.5	97.5	104.7	108.3	133.4	148.1	168.4	1256.8
FS Gwh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NUGS Gwh	36.5	33.1	36.7	35.7	37.0	36.0	37.3	37.4	36.3	37.6	36.5	37.9	438.0
NUGS MW	58.0	58.2	58.4	58.6	58.8	58.9	59.1	59.3	59.5	59.6	59.8	60.0	59.0
TOTAL EIP+NUGS+FS Gwh	114.7	106.7	121.6	121.3	123.8	123.5	134.8	142.1	144.6	171.0	184.6	206.3	1695.0
TOTAL EIP+TOU+NUGS+FS MW	333.5	346.2	359.1	371.9	367.7	379.7	398.6	417.6	436.7	495.4	531.8	568.0	417.2
PRIMARY 20 Min PEAK MW	23683.5	22596.8	21703.9	19468.1	18244.3	19140.3	19657.4	19637.4	18493.3	19435.6	21499.2	23646.0	20600.5
PRIMARY 1 hr PEAK MW	23423.5	22433.8	21505.9	19293.1	18086.3	19009.3	19538.4	19518.4	18319.3	19206.6	21284.2	23468.0	20423.9
PRIMARY Gwh	13762.3	12214.3	12470.4	10861.7	10598.2	10567.5	11122.2	11043.9	10516.4	11317.0	11965.4	13291.7	139731.0
PRIMARY LF - 20 Min	78.1	80.4	77.2	77.5	78.1	76.7	76.0	75.6	79.0	78.3	77.3	75.6	77.4
PRIMARY LF - 1 hr	79.0	81.0	77.9	78.2	78.8	77.2	76.5	76.1	79.7	79.2	78.1	76.1	78.1
1992													
BASIC 20 Min PEAK MW	24707.0	23650.0	22764.0	20439.0	19158.0	20127.0	20671.0	20668.0	19506.0	20467.0	22617.0	24886.0	21638.3
BASIC 1 hr PEAK MW	24439.0	23485.0	22560.0	20260.0	18995.0	19991.0	20548.0	20547.0	19328.0	20232.0	22396.0	24704.0	21457.1
BASIC ENERGY Gwh	14290.0	13173.0	13000.0	11316.0	11029.0	11016.0	11590.0	11528.0	10985.0	11796.0	12470.0	13866.0	146059.0
BASIC LF - 20 Min	77.7	80.0	76.8	76.9	77.4	76.0	75.4	75.0	78.2	77.5	76.6	74.9	77.1
BASIC LF - 1 hr	78.6	80.6	77.5	77.6	78.0	76.5	75.8	75.4	78.9	78.4	77.3	75.4	77.7
EEI MW	341.9	349.7	357.8	365.9	339.1	341.9	355.3	368.8	382.4	461.9	493.9	526.0	390.1
FS MW	1.0	2.0	3.0	4.0	3.6	4.3	5.7	7.2	8.6	16.0	20.0	24.0	8.3
TOU MW	177.9	181.8	185.8	189.7	193.6	197.5	201.4	205.3	209.3	213.2	217.1	221.0	199.5
EEI Gwh	172.5	163.6	177.7	174.9	172.1	169.9	182.4	189.2	189.8	224.4	240.0	263.2	2319.6
FS Gwh	0.3	0.5	0.9	1.1	1.0	1.1	1.5	1.9	2.2	4.3	6.0	7.4	28.3
NUGS Gwh	20.9	19.5	21.7	21.4	22.5	22.2	23.4	23.8	23.4	24.6	24.2	25.4	273.0
NUGS MW	30.3	30.9	31.5	32.1	32.7	33.3	33.9	34.5	35.2	35.8	36.4	37.0	33.6
TOTAL EIP+NUGS+FS Gwh	193.7	183.6	200.3	197.4	195.6	193.2	207.3	214.9	215.4	253.3	270.2	296.0	2620.9
TOTAL EIP+TOU+NUGS+FS MW	551.1	564.4	578.1	591.7	565.0	577.0	596.3	615.8	635.5	726.9	767.4	808.0	631.4
PRIMARY 20 Min PEAK MW	24155.9	23085.6	22185.9	19847.3	18593.0	19550.0	20074.7	20052.2	18870.5	19740.1	21849.6	24078.0	21006.9
PRIMARY 1 hr PEAK MW	23887.9	22920.6	21981.9	19668.3	18430.0	19414.0	19951.7	19931.2	18692.5	19505.1	21628.6	23896.0	20825.7
PRIMARY Gwh	14096.3	12989.4	12799.7	11118.6	10833.4	10822.8	11382.7	11313.1	10769.6	11542.7	12199.8	13570.0	143438.1
PRIMARY LF - 20 Min	78.4	80.8	77.5	77.8	78.3	76.9	76.2	75.8	79.3	78.6	77.5	75.8	77.9
PRIMARY LF - 1 hr	79.3	81.4	78.3	78.5	79.0	77.4	76.7	76.3	80.0	79.5	78.3	76.3	78.6

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1993	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOTAL
BASIC 20 Min PEAK MW	25521.0	24435.0	23520.0	21131.0	19859.0	20876.0	21449.0	21463.0	20238.0	21215.0	23434.0	25823.0	22413.7
BASIC 1 hr PEAK MW	25244.0	24265.0	23309.0	20947.0	19691.0	20736.0	21323.0	21338.0	20055.0	20972.0	23206.0	25635.0	22226.8
BASIC ENERGY Gwh	14741.0	13126.0	13431.0	11695.0	11434.0	11425.0	12023.0	11971.0	11399.0	12226.0	12911.0	14381.0	150763.0
BASIC LF - 20 Min	77.6	79.9	76.8	76.9	77.4	76.0	75.3	75.0	78.2	77.5	76.5	74.9	76.8
BASIC LF - 1 hr	78.5	80.5	77.4	77.5	78.0	76.5	75.8	75.4	78.9	78.4	77.3	75.4	77.4
EEI MW	533.7	541.4	549.3	557.2	496.7	503.4	516.7	530.0	543.4	651.2	682.6	714.0	568.3
FS MW	26.1	28.1	30.2	32.3	24.5	26.0	28.9	31.8	34.7	57.3	65.7	74.0	38.3
TOU MW	225.6	230.2	234.8	239.3	243.9	248.5	253.1	257.7	262.3	266.8	271.4	276.0	250.8
EEI Gwh	267.2	242.3	270.1	263.6	254.1	249.2	264.3	271.0	268.9	314.0	330.4	356.0	3351.1
FS Gwh	8.1	7.6	8.8	8.9	6.6	6.8	7.8	8.5	9.0	15.6	20.0	23.1	130.7
NUGS Gwh	27.3	25.5	28.4	28.0	29.5	29.0	30.5	31.1	30.6	32.2	31.7	33.3	357.0
NUGS MW	39.2	40.0	40.8	41.6	42.4	43.2	44.0	44.8	45.6	46.4	47.2	48.0	43.6
TOTAL EIP+NUGS+FS Gwh	302.6	275.4	307.3	300.5	290.2	285.0	302.6	310.6	308.5	361.8	382.1	412.4	3838.9
TOTAL EIP+TOU+NUGS+FS MW	824.6	839.7	855.1	870.4	807.5	821.1	842.7	864.3	886.0	1021.7	1066.9	1112.0	901.0
PRIMARY 20 Min PEAK MW	24696.4	23595.3	22664.9	20260.6	19051.5	20054.9	20606.3	20598.7	19352.0	20193.3	22367.1	24711.0	21512.6
PRIMARY 1 hr PEAK MW	24419.4	23425.3	22453.9	20076.6	18883.5	19914.9	20480.3	20473.7	19169.0	19950.3	22139.1	24523.0	21325.7
PRIMARY Gwh	14438.4	12850.6	13123.7	11394.5	11143.8	11140.0	11720.4	11660.4	11090.5	11864.2	12528.9	13968.6	146924.1
PRIMARY LF - 20 Min	78.6	81.0	77.8	78.1	78.6	77.1	76.4	76.1	79.6	79.0	77.8	76.0	78.0
PRIMARY LF - 1 hr	79.5	81.6	78.6	78.8	79.3	77.7	76.9	76.5	80.4	79.9	78.6	76.6	78.6
1994													
BASIC 20 Min PEAK MW	26391.0	25266.0	24315.0	21842.0	20530.0	21581.0	22178.0	22185.0	20912.0	21915.0	24209.0	26683.0	23167.3
BASIC 1 hr PEAK MW	26105.0	25090.0	24097.0	21652.0	20356.0	21436.0	22047.0	22056.0	20722.0	21664.0	23974.0	26488.0	22973.9
BASIC ENERGY Gwh	15233.0	13565.0	13876.0	12079.0	11811.0	11802.0	12423.0	12365.0	11772.0	12624.0	13333.0	14855.0	155738.0
BASIC LF - 20 Min	77.6	79.9	76.7	76.8	77.3	76.0	75.3	74.9	78.2	77.4	76.5	74.8	76.7
BASIC LF - 1 hr	78.4	80.5	77.4	77.5	78.0	76.5	75.7	75.4	78.9	78.3	77.2	75.4	77.4
EEI MW	720.4	726.7	733.2	739.7	651.4	657.0	668.2	679.4	690.7	817.2	843.1	869.0	733.0
FS MW	77.9	81.8	85.8	89.8	65.0	67.6	72.6	77.7	82.9	137.3	153.1	169.0	96.7
TOU MW	280.8	285.7	290.5	295.3	300.2	305.0	309.8	314.7	319.5	324.3	329.2	334.0	307.4
EEI Gwh	359.6	324.1	359.1	348.5	332.6	324.6	341.1	346.7	341.0	392.7	407.2	432.3	4309.6
FS Gwh	24.5	22.4	25.2	25.0	17.7	17.9	19.9	21.3	22.1	38.0	48.2	54.5	336.8
NUGS Gwh	49.3	45.1	50.5	49.4	51.6	50.5	52.8	53.3	52.2	54.5	53.3	55.6	618.0
NUGS MW	73.7	74.5	75.4	76.2	77.1	77.9	78.8	79.6	80.5	81.3	82.2	83.0	78.3
TOTAL EIP+NUGS+FS Gwh	433.4	391.6	434.8	422.9	401.9	393.0	413.8	421.3	415.3	485.2	508.7	542.4	5264.2
TOTAL EIP+TOU+NUGS+FS MW	1152.8	1168.7	1184.9	1201.0	1093.7	1107.5	1129.4	1151.4	1173.6	1360.1	1407.6	1455.0	1215.5
PRIMARY 20 Min PEAK MW	25238.2	24097.3	23130.1	20641.0	19436.3	20473.5	21048.6	21033.6	19738.4	20554.9	22801.4	25228.0	21951.8
PRIMARY 1 hr PEAK MW	24952.2	23921.3	22912.1	20451.0	19262.3	20328.5	20917.6	20904.6	19548.4	20303.9	22566.4	25033.0	21758.5
PRIMARY Gwh	14799.6	13173.4	13441.2	11656.1	11409.1	11409.0	12009.2	11943.7	11356.7	12138.8	12824.3	14312.6	150473.8
PRIMARY LF - 20 Min	78.8	81.4	78.1	78.4	78.9	77.4	76.7	76.3	79.9	79.4	78.1	76.3	78.3
PRIMARY LF - 1 hr	79.7	81.9	78.8	79.2	79.6	77.9	77.2	76.8	80.7	80.4	78.9	76.8	78.9

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

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1995	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOTAL
BASIC 20 Min PEAK MW	27343.0	26177.0	25185.0	22609.0	21248.0	22332.0	22954.0	22960.0	21641.0	22687.0	25075.0	27662.0	23989.4
BASIC 1 hr PEAK MW	27046.0	25994.0	24959.0	22412.0	21066.0	22181.0	22818.0	22825.0	21444.0	22426.0	24831.0	27459.0	23788.4
BASIC ENERGY Gwh	15773.6	14048.0	14363.4	12496.6	12217.1	12207.5	12853.6	12789.9	12175.1	13062.6	13806.9	15395.5	161189.8
BASIC LF - 20 Min	77.5	79.9	76.7	76.8	77.3	75.9	75.3	74.9	78.1	77.4	76.5	74.8	76.7
BASIC LF - 1 hr	78.4	80.4	77.3	77.4	77.9	76.4	75.7	75.3	78.9	78.3	77.2	75.4	77.4
EEI MW	879.0	888.9	899.1	909.3	801.6	810.4	827.8	845.3	862.9	1030.8	1071.4	1112.0	911.5
FS MW	177.5	186.0	194.7	203.4	142.2	148.0	159.5	170.9	182.5	306.9	341.4	376.0	215.8
TOU MW	339.3	344.5	349.8	355.0	360.3	365.5	370.8	376.0	381.3	386.5	391.7	397.0	368.1
EEI Gwh	437.5	395.1	438.7	426.7	407.6	398.6	420.4	428.9	423.4	491.7	513.5	548.5	5330.7
FS Gwh	57.6	52.2	58.5	57.7	39.5	39.8	44.3	47.5	49.1	85.5	108.1	121.6	761.4
NUGS Gwh	65.5	59.5	66.2	64.4	66.8	65.0	67.5	67.8	66.0	68.5	66.6	69.2	793.0
NUGS MW	100.5	101.4	100.6	102.5	103.7	105.1	104.5	106.3	104.5	105.6	105.9	106.0	103.9
TOTAL EIP+NUGS+FS Gwh	560.6	506.8	563.4	548.8	513.9	503.4	532.2	544.2	538.5	645.7	688.2	739.3	6885.0
TOTAL EIP+TOU+NUGS+FS MW	1496.3	1520.8	1544.2	1570.2	1407.8	1429.0	1462.6	1498.5	1531.2	1829.8	1910.4	1991.0	1599.3
PRIMARY 20 Min PEAK MW	25846.7	24656.2	23640.8	21038.8	19840.2	20903.0	21491.4	21461.5	20109.8	20857.2	23164.6	25671.0	22390.1
PRIMARY 1 hr PEAK MW	25549.7	24473.2	23414.8	20841.8	19658.2	20752.0	21355.4	21326.5	19912.8	20596.2	22920.6	25468.0	22189.1
PRIMARY Gwh	15213.0	13541.2	13800.0	11947.8	11703.2	11704.1	12321.4	12245.7	11636.6	12416.9	13118.7	14656.2	154304.8
PRIMARY LF - 20 Min	79.1	81.7	78.5	78.9	79.3	77.8	77.1	76.7	80.4	80.0	78.7	76.7	78.7
PRIMARY LF - 1 hr	80.0	82.3	79.2	79.6	80.0	78.3	77.5	77.2	81.2	81.0	79.5	77.3	79.4
1996													
BASIC 20 Min PEAK MW	28402.0	27185.0	26140.0	23446.0	22028.0	23162.0	23817.0	23810.0	22419.0	23496.0	25986.0	28728.0	24884.9
BASIC 1 hr PEAK MW	28090.0	26992.0	25903.0	23240.0	21836.0	23002.0	23674.0	23667.0	22211.0	23222.0	25730.0	28514.0	24673.4
BASIC ENERGY Gwh	16367.5	15091.7	14890.7	12939.6	12642.9	12635.7	13316.7	13235.2	12584.5	13500.3	14279.0	15966.8	167450.6
BASIC LF - 20 Min	77.5	82.6	76.6	76.7	77.1	75.8	75.2	74.7	78.0	77.2	76.3	74.7	76.8
BASIC LF - 1 hr	78.3	83.2	77.3	77.3	77.8	76.3	75.6	75.2	78.7	78.1	77.1	75.3	77.5
EEI MW	1121.6	1131.3	1141.1	1151.0	1010.0	1018.5	1035.3	1052.1	1069.2	1268.5	1307.8	1347.0	1137.8
FS MW	384.1	392.2	400.6	408.9	278.3	283.8	294.5	305.2	316.0	507.9	540.9	574.0	390.5
TOU MW	402.3	407.7	413.0	418.3	423.7	429.0	434.3	439.7	445.0	450.3	455.7	461.0	431.7
EEI Gwh	554.0	516.7	552.4	535.8	509.4	497.0	521.7	529.8	520.7	600.6	622.8	660.3	6621.3
FS Gwh	125.0	114.2	120.6	116.2	77.6	76.6	82.2	85.2	85.4	141.9	172.1	186.7	1383.8
NUGS Gwh	71.5	64.9	72.2	70.1	72.8	70.8	73.5	73.8	71.7	74.4	72.3	75.1	863.0
NUGS MW	105.9	106.8	107.7	108.6	109.5	110.5	111.4	112.3	113.2	114.2	115.1	116.0	110.9
TOTAL EIP+NUGS+FS Gwh	750.5	695.8	745.2	722.1	659.8	644.4	677.4	688.8	677.8	816.9	867.2	922.1	8867.9
TOTAL EIP+TOU+NUGS+FS MW	2013.9	2038.0	2062.4	2086.8	1821.5	1841.8	1875.5	1909.3	1943.4	2340.9	2419.5	2498.0	2070.9
PRIMARY 20 Min PEAK MW	26388.1	25147.0	24077.6	21359.2	20206.5	21320.2	21941.5	21900.7	20475.6	21155.1	23566.5	26230.0	22814.0
PRIMARY 1 hr PEAK MW	26076.1	24954.0	23840.6	21153.2	20014.5	21160.2	21798.5	21757.7	20267.6	20881.1	23310.5	26016.0	22602.5
PRIMARY Gwh	15617.0	14395.9	14145.5	12217.5	11983.1	11991.3	12639.3	12546.4	11906.7	12683.4	13411.8	15044.7	158582.7
PRIMARY LF - 20 Min	79.5	85.2	79.0	79.4	79.7	78.1	77.4	77.0	80.8	80.6	79.0	77.1	79.4
PRIMARY LF - 1 hr	80.5	85.8	79.7	80.2	80.5	78.7	77.9	77.5	81.6	81.6	79.9	77.7	80.1

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

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1997	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOTAL
BASIC 20 Min PEAK MW	29148.0	27883.0	26812.0	24066.0	22602.0	23741.0	24378.0	24367.0	22951.0	24034.0	26529.0	29219.0	25477.5
BASIC 1 hr PEAK MW	28832.0	27689.0	26572.0	23856.0	22411.0	23581.0	24234.0	24226.0	22743.0	23758.0	26272.0	29005.0	25264.9
BASIC ENERGY Gwh	16734.0	14890.0	15219.0	13238.0	12934.0	12914.0	13582.0	13509.0	12851.0	13770.0	14532.0	16179.0	170352.0
BASIC LF - 20 Min	77.2	79.5	76.3	76.4	76.9	75.5	74.9	74.5	77.8	77.0	76.1	74.4	76.3
BASIC LF - 1 hr	78.0	80.0	77.0	77.1	77.6	76.1	75.3	74.9	78.5	77.9	76.8	75.0	77.0
EEI MW	1356.0	1365.0	1374.3	1383.5	1210.3	1218.4	1234.3	1250.3	1266.4	1493.5	1530.3	1567.0	1354.1
FS MW	581.2	588.4	595.8	603.2	404.6	409.5	419.1	428.8	438.5	691.2	720.6	750.0	552.6
TOU MW	466.8	472.5	478.3	484.0	489.7	495.5	501.2	507.0	512.8	518.5	524.3	530.0	498.4
EEI Gwh	665.4	598.0	660.9	639.8	606.5	590.7	618.1	625.9	613.2	703.6	725.5	765.0	7812.6
FS Gwh	190.1	166.2	180.1	172.0	113.3	111.0	117.4	120.1	118.9	193.4	229.6	244.2	1956.2
NUGS Gwh	79.8	72.4	80.5	78.3	81.3	79.0	82.1	82.4	80.1	83.2	80.9	83.9	964.0
NUGS MW	118.8	119.8	120.8	121.8	122.9	123.9	124.9	125.9	126.9	128.0	129.0	130.0	124.4
TOTAL EIP+NUGS+FS Gwh	935.3	836.6	921.5	890.1	801.1	780.7	817.6	828.4	812.2	980.2	1036.0	1093.1	10732.9
TOTAL EIP+TOU+NUGS+FS MW	2522.8	2545.7	2569.2	2592.5	2227.5	2247.3	2279.5	2312.0	2344.6	2831.2	2904.2	2977.0	2529.5
PRIMARY 20 Min PEAK MW	26625.2	25337.3	24242.8	21473.5	20374.5	21493.7	22098.5	22055.0	20606.4	21202.8	23624.8	26242.0	22948.0
PRIMARY 1 hr PEAK MW	26309.2	25143.3	24002.8	21263.5	20183.5	21333.7	21954.5	21914.0	20398.4	20926.8	23367.8	26028.0	22735.5
PRIMARY Gwh	15798.7	14053.4	14297.5	12347.9	12132.9	12133.3	12764.4	12680.6	12038.8	12789.8	13496.0	15085.9	159619.1
PRIMARY LF - 20 Min	79.8	82.5	79.3	79.9	80.0	78.4	77.6	77.3	81.1	81.1	79.3	77.3	79.4
PRIMARY LF - 1 hr	80.7	83.2	80.1	80.7	80.8	79.0	78.1	77.8	82.0	82.1	80.2	77.9	80.1
1998													
BASIC 20 Min PEAK MW	29580.0	28302.0	27220.0	24437.0	22955.0	24116.0	24769.0	24762.0	23328.0	24033.0	26975.0	29715.0	25882.7
BASIC 1 hr PEAK MW	29260.0	28105.0	26976.0	24224.0	22761.0	23954.0	24622.0	24618.0	23116.0	24153.0	26713.0	29498.0	25666.7
BASIC ENERGY Gwh	17001.0	15130.0	15467.0	13456.0	13150.0	13132.0	13815.0	13743.0	13076.0	14014.0	14792.0	16472.0	173248.0
BASIC LF - 20 Min	77.3	79.6	76.4	76.5	77.0	75.6	75.0	74.6	77.9	77.1	76.2	74.5	76.4
BASIC LF - 1 hr	78.1	80.1	77.1	77.2	77.7	76.1	75.4	75.0	78.6	78.0	76.9	75.1	77.1
EEI MW	1576.0	1585.0	1594.3	1603.5	1402.3	1410.4	1426.3	1442.3	1458.4	1713.5	1750.3	1787.0	1562.4
FS MW	757.2	764.4	771.8	779.2	520.6	525.5	535.1	544.8	554.5	867.2	896.6	926.0	703.6
TOU MW	535.7	541.3	547.0	552.7	558.3	564.0	569.7	575.3	581.0	586.7	592.3	598.0	566.8
EEI Gwh	770.4	691.8	763.8	738.8	699.7	680.9	711.3	719.1	703.5	804.6	827.3	869.8	8980.9
FS Gwh	247.9	216.1	233.4	222.4	145.9	142.5	150.0	152.7	150.4	242.7	285.9	301.6	2491.3
NUGS Gwh	88.1	79.9	88.9	86.5	89.8	87.3	90.7	91.1	88.6	92.0	89.4	92.8	1065.0
NUGS MW	130.8	131.9	133.0	134.1	135.2	136.3	137.4	138.5	139.7	140.8	141.9	143.0	136.9
TOTAL EIP+NUGS+FS Gwh	1106.4	987.8	1086.1	1047.7	935.4	910.7	952.0	962.9	942.5	1139.3	1202.6	1264.2	12537.5
TOTAL EIP+TOU+NUGS+FS MW	2999.7	3022.6	3046.1	3069.5	2616.4	2636.2	2668.5	2700.9	2733.6	3308.2	3381.1	3454.0	2969.7
PRIMARY 20 Min PEAK MW	26580.3	25279.4	24173.9	21367.5	20338.6	21479.8	22100.5	22061.1	20594.4	21124.8	23593.9	26261.0	22912.9
PRIMARY 1 hr PEAK MW	26260.3	25082.4	23929.9	21154.5	20144.6	21317.8	21953.5	21917.1	20382.4	20844.8	23331.9	26044.0	22696.9
PRIMARY Gwh	15894.6	14142.2	14380.9	12408.3	12214.6	12221.3	12863.0	12780.1	12133.5	12874.7	13589.4	15207.8	160710.5
PRIMARY LF - 20 Min	80.4	83.2	80.0	80.7	80.7	79.0	78.2	77.9	81.8	81.9	80.0	77.8	80.1
PRIMARY LF - 1 hr	81.4	83.9	80.8	81.5	81.5	79.6	78.8	78.4	82.7	83.0	80.9	78.5	80.8

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

October 31.1991

1999	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOTAL
BASIC 20 Min PEAK MW	30068.0	28769.0	27669.0	24840.0	23333.0	24513.0	25176.0	25169.0	23711.0	24834.0	27418.0	30203.0	26308.6
BASIC 1 hr PEAK MW	29743.0	28568.0	27421.0	24623.0	23136.0	24348.0	25028.0	25023.0	23496.0	24550.0	27152.0	29982.0	26089.2
BASIC ENERGY Gwh	17280.0	15379.0	15721.0	13677.0	13366.0	13348.0	14041.0	13968.0	13290.0	14243.0	15034.0	16741.0	176088.0
BASIC LF - 20 Min	77.2	79.5	76.4	76.5	77.0	75.6	75.0	74.6	77.8	77.1	76.2	74.5	76.4
BASIC LF - 1 hr	78.1	80.1	77.1	77.1	77.6	76.1	75.4	75.0	78.6	78.0	76.9	75.0	77.0
EEI MW	1796.0	1805.0	1814.2	1823.4	1594.2	1602.3	1618.2	1634.1	1650.1	1932.9	1969.4	2006.0	1770.5
FS MW	933.2	940.4	947.7	955.0	636.6	641.4	651.0	660.7	670.4	1042.6	1071.8	1101.0	854.3
TOU MW	604.3	610.5	616.8	623.0	629.3	635.5	641.7	648.0	654.2	660.5	666.8	673.0	638.6
EEI Gwh	875.3	785.5	866.6	837.7	792.9	771.1	804.5	812.2	793.6	905.4	928.7	974.2	10147.7
FS Gwh	305.6	266.0	286.7	272.6	178.4	174.0	182.5	185.2	181.9	291.8	341.8	358.6	3025.1
NUGS Gwh	95.9	87.1	96.9	94.2	97.9	95.2	98.8	99.3	96.6	100.3	97.5	101.3	1161.0
NUGS MW	142.8	144.0	145.2	146.4	147.6	148.8	150.0	151.2	152.4	153.6	154.8	156.0	149.4
TOTAL EIP+NUGS+FS Gwh	1276.8	1138.6	1250.2	1204.5	1069.2	1040.3	1085.8	1096.7	1072.1	1297.5	1368.0	1434.1	14333.8
TOTAL EIP+TOU+NUGS+FS MW	3476.3	3499.9	3523.9	3547.8	3007.7	3028.0	3060.9	3094.0	3127.1	3789.6	3862.8	3936.0	3412.8
PRIMARY 20 Min PEAK MW	26591.7	25269.1	24145.1	21292.2	20325.3	21485.0	22115.1	22075.0	20583.9	21044.4	23555.2	26267.0	22895.8
PRIMARY 1 hr PEAK MW	26266.7	25068.1	23897.1	21075.2	20128.3	21320.0	21967.1	21929.0	20368.9	20760.4	23289.2	26046.0	22676.3
PRIMARY Gwh	16003.2	14240.4	14470.8	12472.5	12296.8	12307.7	12955.2	12871.3	12217.9	12945.5	13666.0	15306.9	161754.2
PRIMARY LF - 20 Min	80.9	83.9	80.6	81.4	81.3	79.6	78.7	78.4	82.4	82.7	80.6	78.3	80.6
PRIMARY LF - 1 hr	81.9	84.5	81.4	82.2	82.1	80.2	79.3	78.9	83.3	83.8	81.5	79.0	81.4
2000													
BASIC 20 Min PEAK MW	30595.0	29274.0	28155.0	25277.0	23745.0	24947.0	25623.0	25617.0	24133.0	25277.0	27908.0	30744.0	26774.6
BASIC 1 hr PEAK MW	30263.0	29070.0	27903.0	25057.0	23544.0	24779.0	25471.0	25468.0	23914.0	24988.0	27637.0	30519.0	26551.1
BASIC ENERGY Gwh	17587.0	15652.0	16001.0	13921.0	13604.0	13587.0	14293.0	14219.0	13529.0	14500.0	15306.0	17044.0	179243.0
BASIC LF - 20 Min	77.3	79.6	76.4	76.5	77.0	75.6	75.0	74.6	77.9	77.1	76.2	74.5	76.4
BASIC LF - 1 hr	78.1	80.1	77.1	77.2	77.7	76.2	75.4	75.0	78.6	78.0	76.9	75.1	77.1
EEI MW	2015.0	2024.0	2033.2	2042.4	1785.7	1793.8	1809.7	1825.6	1841.7	2151.9	2188.4	2225.0	1978.0
FS MW	1108.1	1115.3	1122.6	1129.9	752.3	757.1	766.7	776.3	786.0	1216.9	1245.9	1275.0	1004.3
TOU MW	679.4	685.8	692.3	698.7	705.1	711.5	717.9	724.3	730.7	737.2	743.6	750.0	714.7
EEI Gwh	980.0	910.4	969.3	936.4	886.0	861.1	897.6	905.3	883.6	1006.2	1030.1	1078.7	11344.7
FS Gwh	362.9	326.7	339.6	322.5	210.9	205.4	214.9	217.6	213.2	340.5	397.2	415.2	3566.5
NUGS Gwh	103.8	94.2	104.9	102.0	105.9	103.0	107.0	107.6	104.6	108.6	105.7	109.7	1257.0
NUGS MW	154.8	156.0	157.3	158.6	159.9	161.2	162.5	163.8	165.1	166.4	167.7	169.0	161.9
TOTAL EIP+NUGS+FS Gwh	1446.7	1331.3	1413.8	1360.9	1202.8	1169.5	1219.5	1230.5	1201.4	1455.3	1533.0	1603.6	16168.3
TOTAL EIP+TOU+NUGS+FS MW	3957.3	3981.1	4005.4	4029.6	3403.0	3423.6	3456.8	3490.0	3523.5	4272.4	4345.6	4419.0	3859.0
PRIMARY 20 Min PEAK MW	26637.7	25292.9	24149.6	21247.4	20342.0	21523.4	22166.2	22127.0	20609.5	21004.6	23562.4	26325.0	22915.6
PRIMARY 1 hr PEAK MW	26305.7	25088.9	23897.6	21027.4	20141.0	21355.4	22014.2	21978.0	20390.5	20715.6	23291.4	26100.0	22692.1
PRIMARY Gwh	16140.3	14320.7	14587.2	12560.1	12401.2	12417.5	13073.5	12988.5	12327.6	13044.7	13773.0	15440.4	163074.7
PRIMARY LF - 20 Min	81.4	84.3	81.2	82.1	81.9	80.1	79.3	78.9	83.1	83.5	81.2	78.8	81.2
PRIMARY LF - 1 hr	82.5	84.9	82.0	83.0	82.8	80.8	79.8	79.4	84.0	84.6	82.1	79.5	82.0

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

October 31,1991

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOTAL
2001													
BASIC 20 Min PEAK MW	31148.0	29802.0	28663.0	25733.0	24173.0	25395.0	26083.0	26076.0	24566.0	25730.0	28408.0	31294.0	27255.9
BASIC 1 hr PEAK MW	30810.0	29594.0	28406.0	25509.0	23968.0	25225.0	25929.0	25925.0	24343.0	25435.0	28132.0	31065.0	27028.4
BASIC ENERGY Gwh	17903.0	15933.0	16288.0	14171.0	13848.0	13830.0	14548.0	14473.0	13771.0	14759.0	15579.0	17348.0	182451.0
BASIC LF - 20 Min	77.3	79.6	76.4	76.5	77.0	75.6	75.0	74.6	77.9	77.1	76.2	74.5	76.4
BASIC LF - 1 hr	78.1	80.1	77.1	77.2	77.7	76.1	75.4	75.0	78.6	78.0	76.9	75.1	77.1
EEI MW	2234.1	2243.3	2252.7	2262.0	1976.9	1984.9	2000.7	2016.4	2032.4	2373.5	2410.8	2448.0	2186.3
FS MW	1282.0	1288.9	1296.1	1303.2	866.6	871.3	880.4	889.5	898.8	1388.2	1416.6	1445.0	4125.4
TOU MW	755.7	761.3	767.0	772.7	778.3	784.0	789.7	795.3	801.0	806.7	812.3	818.0	786.8
EEI Gwh	1084.5	972.4	1071.9	1035.2	978.8	951.0	990.4	998.1	973.5	1107.6	1133.1	1185.1	12481.5
FS Gwh	419.7	364.4	391.9	371.8	242.6	236.0	246.3	248.8	243.1	387.6	450.9	469.6	4072.5
NUGS Gwh	105.2	95.5	106.3	103.4	107.4	104.4	108.5	109.0	106.0	110.1	107.1	111.2	1274.0
NUGS MW	156.6	157.9	159.2	160.5	161.8	163.1	164.5	165.8	167.1	168.4	169.7	171.0	163.8
TOTAL EIP+NUGS+FS Gwh	1609.5	1432.3	1570.1	1510.4	1328.9	1291.4	1345.2	1355.9	1322.6	1605.2	1690.9	1765.7	17828.1
TOTAL EIP+TOU+NUGS+FS MW	4428.4	4451.4	4475.0	4498.4	3783.6	3803.3	3835.3	3867.0	3899.3	4736.8	4809.4	4882.0	4289.1
PRIMARY 20 Min PEAK MW	26719.6	25350.5	24188.1	21234.6	20389.3	21591.8	22247.8	22208.9	20666.8	20993.2	23598.6	26412.0	22966.8
PRIMARY 1 hr PEAK MW	26381.6	25142.5	23931.1	21010.6	20184.3	21421.8	22093.8	22057.9	20443.8	20698.2	23322.6	26183.0	22739.3
PRIMARY Gwh	16293.5	14500.7	14717.9	12660.6	12519.1	12538.6	13202.8	13117.1	12448.4	13153.7	13888.1	15582.3	164622.9
PRIMARY LF - 20 Min	82.0	85.1	81.8	82.8	82.5	80.7	79.8	79.4	83.7	84.2	81.7	79.3	81.8
PRIMARY LF - 1 hr	83.0	85.8	82.7	83.7	83.4	81.3	80.3	79.9	84.6	85.4	82.7	80.0	82.6
2002													
BASIC 20 Min PEAK MW	31744.0	30373.0	29213.0	26227.0	24638.0	25885.0	26587.0	26581.0	25042.0	26230.0	28960.0	31903.0	27781.9
BASIC 1 hr PEAK MW	31400.0	30161.0	28951.0	25999.0	24430.0	25712.0	26430.0	26427.0	24815.0	25929.0	28679.0	31670.0	27550.3
BASIC ENERGY Gwh	18249.0	16241.0	16604.0	14446.0	14117.0	14099.0	14832.0	14756.0	14040.0	15048.0	15884.0	17689.0	186005.0
BASIC LF - 20 Min	77.3	79.6	76.4	76.5	77.0	75.6	75.0	74.6	77.9	77.1	76.2	74.5	76.4
BASIC LF - 1 hr	78.1	80.1	77.1	77.2	77.7	76.2	75.4	75.0	78.6	78.0	76.9	75.1	77.1
EEI MW	2457.1	2466.3	2475.7	2485.0	2166.9	2174.9	2190.7	2206.4	2222.4	2596.5	2633.8	2671.0	2395.6
FS MW	1451.6	1458.1	1464.8	1471.6	976.2	980.7	989.7	998.7	1007.8	1551.6	1578.3	1605.0	4544.4
TOU MW	823.6	829.2	834.8	840.3	845.9	851.5	857.1	862.7	868.3	873.8	879.4	885.0	854.3
EEI Gwh	1191.1	1067.4	1176.1	1135.3	1071.6	1040.8	1083.2	1090.9	1063.2	1209.6	1236.4	1291.6	13657.3
FS Gwh	474.2	411.2	441.7	418.6	271.9	264.3	275.5	277.9	271.2	431.7	500.5	519.6	4558.5
NUGS Gwh	106.9	97.1	108.0	105.1	109.1	106.2	110.3	110.8	107.8	111.9	108.8	113.0	1295.0
NUGS MW	159.3	160.6	162.0	163.3	164.6	166.0	167.3	168.7	170.0	171.3	172.7	174.0	166.7
TOTAL EIP+NUGS+FS Gwh	1772.3	1575.8	1725.9	1659.0	1452.7	1411.4	1469.0	1479.6	1442.3	1753.2	1845.8	1924.1	19511.1
TOTAL EIP+TOU+NUGS+FS MW	4891.6	4914.2	4937.3	4960.2	4153.6	4173.1	4204.8	4236.5	4268.5	5193.2	5264.2	5335.0	4711.0
PRIMARY 20 Min PEAK MW	26852.4	25458.8	24275.8	21266.8	20484.3	21711.9	22382.2	22344.5	20773.6	21036.8	23695.8	26568.0	23070.9
PRIMARY 1 hr PEAK MW	26508.4	25246.8	24013.8	21038.8	20276.3	21538.9	22225.2	22190.5	20546.6	20735.8	23414.8	26335.0	22839.2
PRIMARY Gwh	16476.7	14665.2	14878.2	12787.0	12664.3	12687.7	13363.0	13276.4	12597.8	13294.8	14038.3	15764.9	166494.3
PRIMARY LF - 20 Min	82.5	85.7	82.4	83.5	83.1	81.2	80.2	79.9	84.2	84.9	82.3	79.8	82.4
PRIMARY LF - 1 hr	83.5	86.4	83.3	84.4	83.9	81.8	80.8	80.4	85.2	86.2	83.3	80.5	83.2

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

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2003

BASIC 20 Min PEAK MW	32342.0	30945.0	29762.0	26719.0	25099.0	26369.0	27083.0	27076.0	25508.0	26716.0	29496.0	32492.0	28300.6
BASIC 1 hr PEAK MW	31992.0	30729.0	29495.0	26487.0	24887.0	26192.0	26923.0	26918.0	25276.0	26410.0	29210.0	32255.0	28064.5
BASIC ENERGY Gwh	18589.0	16544.0	16912.0	14714.0	14379.0	14360.0	15106.0	15027.0	14298.0	15324.0	16175.0	18012.0	189440.0
BASIC LF - 20 Min	77.3	79.6	76.4	76.5	77.0	75.6	75.0	74.6	77.9	77.1	76.2	74.5	76.4
BASIC LF - 1 hr	78.1	80.1	77.1	77.2	77.7	76.1	75.4	75.0	78.6	78.0	76.9	75.1	77.1
EEI MW	2679.3	2687.6	2696.2	2704.7	2354.0	2361.4	2376.0	2390.6	2405.4	2806.2	2840.1	2874.0	2598.0
FS MW	1611.6	1618.1	1624.8	1631.6	1084.2	1088.8	1097.7	1106.7	1115.8	1711.6	1738.3	1765.0	4945.6
TOU MW	889.6	894.2	898.8	903.3	907.9	912.5	917.1	921.7	926.3	930.8	935.4	940.0	914.8
EEI Gwh	1297.4	1161.8	1279.2	1234.1	1163.0	1129.0	1173.8	1180.9	1149.8	1306.1	1332.4	1388.9	14796.4
FS Gwh	524.5	454.6	488.2	462.4	300.4	291.9	304.0	306.3	298.8	474.7	549.5	569.6	5024.8
NUGS Gwh	108.5	98.5	109.6	106.6	110.7	107.7	111.9	112.4	109.3	113.6	110.4	114.7	1314.0
NUGS MW	162.1	163.4	164.8	166.1	167.5	168.9	170.2	171.6	172.9	174.3	175.6	177.0	169.5
TOTAL EIP+NUGS+FS Gwh	1930.5	1715.0	1877.1	1803.1	1574.2	1528.6	1589.6	1599.7	1557.9	1894.3	1992.2	2073.0	21135.3
TOTAL EIP+TOU+NUGS+FS MW	5342.6	5363.3	5384.6	5405.7	4513.6	4531.6	4561.0	4590.6	4620.4	5622.9	5689.4	5756.0	5115.1
PRIMARY 20 Min PEAK MW	26999.4	25581.7	24377.4	21313.3	20585.4	21837.5	22522.0	22485.4	20887.7	21093.1	23806.6	26736.0	23185.5
PRIMARY 1 hr PEAK MW	26649.4	25365.7	24110.4	21081.3	20373.4	21660.5	22362.0	22327.4	20655.7	20787.1	23520.6	26499.0	22949.4
PRIMARY Gwh	16658.5	14829.0	15034.9	12910.9	12804.8	12831.4	13516.4	13427.4	12740.1	13429.7	14182.8	15938.9	168304.7
PRIMARY LF - 20 Min	82.9	86.3	82.9	84.1	83.6	81.6	80.7	80.3	84.7	85.6	82.7	80.1	82.9
PRIMARY LF - 1 hr	84.0	87.0	83.8	85.1	84.5	82.3	81.2	80.8	85.7	86.8	83.7	80.8	83.7

2004

BASIC 20 Min PEAK MW	32971.0	31547.0	30343.0	27242.0	25591.0	26886.0	27615.0	27609.0	26011.0	27244.0	30080.0	33137.0	28856.3
BASIC 1 hr PEAK MW	32614.0	31328.0	30071.0	27005.0	25374.0	26706.0	27452.0	27449.0	25775.0	26932.0	29788.0	32895.0	28615.8
BASIC ENERGY Gwh	18954.0	16869.0	17246.0	15005.0	14663.0	14644.0	15406.0	15326.0	14583.0	15630.0	16499.0	18373.0	193198.0
BASIC LF - 20 Min	77.1	79.6	75.9	75.8	76.1	75.2	74.7	74.1	77.2	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.9	80.1	76.6	76.4	76.8	75.7	75.2	74.5	77.8	77.2	76.3	74.5	77.1
EEI MW	2881.9	2889.8	2897.9	2906.0	2527.9	2534.9	2548.7	2562.5	2576.4	3002.5	3034.8	3067.0	2785.9
FS MW	1771.6	1778.1	1784.8	1791.6	1192.2	1196.7	1205.7	1214.7	1223.7	1871.6	1898.3	1925.0	5326.8
TOU MW	944.6	949.2	953.8	958.3	962.9	967.5	972.1	976.7	981.3	985.8	990.4	995.0	969.8
EEI Gwh	1394.8	1293.2	1374.2	1325.2	1248.2	1211.3	1258.4	1265.2	1230.9	1396.7	1423.1	1481.5	15902.8
FS Gwh	574.8	515.8	534.6	506.2	328.9	319.4	332.4	334.8	326.3	517.6	598.5	619.6	5509.0
NUGS Gwh	109.7	99.6	110.8	107.8	111.9	108.9	113.1	113.6	110.5	114.8	111.6	115.9	1328.0
NUGS MW	163.9	165.2	166.6	168.0	169.4	170.7	172.1	173.5	174.9	176.3	177.6	179.0	171.4
TOTAL EIP+NUGS+FS Gwh	2079.4	1908.6	2019.7	1939.3	1689.1	1639.6	1703.9	1713.6	1667.7	2029.0	2133.0	2216.9	22739.6
TOTAL EIP+TOU+NUGS+FS MW	5762.0	5782.3	5803.1	5823.9	4852.4	4869.8	4898.6	4927.4	4956.3	6036.2	6101.1	6166.0	5498.3
PRIMARY 20 Min PEAK MW	27209.0	25764.7	24539.9	21418.1	20738.5	22016.1	22716.4	22681.7	21054.7	21207.8	23978.9	26971.0	23358.1
PRIMARY 1 hr PEAK MW	26852.0	25545.7	24267.9	21181.1	20521.5	21836.1	22553.4	22521.7	20818.7	20895.8	23686.9	26729.0	23117.5
PRIMARY Gwh	16874.6	14960.3	15226.3	13065.7	12974.0	13004.4	13702.1	13612.5	12915.3	13601.0	14365.9	16156.1	170458.4
PRIMARY LF - 20 Min	83.4	86.4	83.4	84.7	84.1	82.0	81.1	80.7	85.2	86.2	83.2	80.5	83.3
PRIMARY LF - 1 hr	84.5	87.1	84.3	85.7	85.0	82.7	81.7	81.2	86.2	87.5	84.2	81.2	84.2

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2005

BASIC 20 Min PEAK MW	33630.0	32178.0	30949.0	27785.0	26102.0	27422.0	28165.0	28139.0	26528.0	27786.0	30678.0	33795.0	29431.4
BASIC 1 hr PEAK MW	33266.0	31954.0	30671.0	27544.0	25880.0	27238.0	27999.0	27995.0	26287.0	27468.0	30380.0	33548.0	29185.8
BASIC ENERGY Gwh	19332.0	17205.0	17589.0	15303.0	14955.0	14935.0	15711.0	15630.0	14872.0	15939.0	16825.0	18736.0	197032.0
BASIC LF - 20 Min	77.1	79.6	75.9	75.8	76.1	75.2	74.7	74.1	77.2	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.9	80.1	76.6	76.4	76.8	75.7	75.2	74.5	77.8	77.2	76.3	74.5	77.1
EEI MW	3074.1	3081.2	3088.5	3095.7	2689.8	2695.9	2708.0	2720.1	2732.4	3182.2	3211.1	3240.0	2959.9
FS MW	1931.6	1938.1	1944.8	1951.6	1300.2	1304.7	1313.7	1322.7	1331.7	2031.6	2058.3	2085.0	5688.2
TOU MW	998.7	1002.3	1006.0	1009.7	1013.3	1017.0	1020.7	1024.3	1028.0	1031.7	1035.3	1039.0	1018.8
EEI Gwh	1487.0	1330.4	1463.6	1410.8	1327.5	1287.6	1336.4	1342.4	1304.9	1479.0	1505.1	1564.3	16838.9
FS Gwh	625.1	541.5	581.1	550.1	357.3	347.0	360.9	363.2	353.8	560.6	647.4	669.6	5957.5
NUGS Gwh	110.9	100.7	112.0	109.0	113.2	110.1	114.3	114.9	111.8	116.1	112.9	117.2	1343.0
NUGS MW	173.0	174.5	175.9	177.4	178.8	180.3	181.7	183.2	184.6	186.1	187.5	189.0	181.0
TOTAL EIP+NUGS+FS Gwh	2223.0	1972.7	2156.7	2069.9	1798.1	1744.6	1811.6	1820.5	1770.5	2155.6	2265.3	2350.9	24139.3
TOTAL EIP+TOU+NUGS+FS MW	6177.4	6196.1	6215.2	6234.4	5182.1	5197.9	5224.1	5250.3	5276.7	6431.6	6492.2	6553.0	5869.3
PRIMARY 20 Min PEAK MW	27452.7	25981.9	24733.8	21550.7	20919.9	22224.0	22940.9	22908.7	21251.2	21354.5	24185.8	27242.0	23562.2
PRIMARY 1 hr PEAK MW	27088.7	25757.9	24455.8	21309.7	20697.9	22040.0	22774.9	22744.7	21010.2	21036.5	23887.8	26995.0	23316.6
PRIMARY Gwh	17109.0	15232.3	15432.3	13233.1	13157.0	13190.3	13899.4	13809.5	13101.5	13783.4	14559.7	16385.0	172892.6
PRIMARY LF - 20 Min	83.8	87.2	83.9	85.3	84.5	82.4	81.4	81.0	85.6	86.8	83.6	80.8	83.8
PRIMARY LF - 1 hr	84.9	88.0	84.8	86.2	85.4	83.1	82.0	81.6	86.6	88.1	84.7	81.6	84.6

2006

BASIC 20 Min PEAK MW	34296.0	32815.0	31562.0	28335.0	26618.0	27965.0	28723.0	28716.0	27054.0	28336.0	31285.0	34464.0	30014.1
BASIC 1 hr PEAK MW	33924.0	32586.0	31279.0	28089.0	26393.0	27777.0	28553.0	28549.0	26808.0	28011.0	30981.0	34212.0	29763.5
BASIC ENERGY Gwh	19714.0	17546.0	17937.0	15606.0	15251.0	15231.0	16022.0	15939.0	15167.0	16255.0	17158.0	19107.0	200933.0
BASIC LF - 20 Min	77.0	79.5	75.9	75.8	76.1	75.2	74.7	74.1	77.2	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.9	80.1	76.5	76.4	76.7	75.7	75.1	74.5	77.8	77.1	76.3	74.5	77.1
EEI MW	3246.3	3252.5	3259.0	3265.4	2831.6	2836.9	2847.4	2857.8	2868.4	3341.9	3367.4	3393.0	3114.0
FS MW	2091.6	2098.1	2104.8	2111.6	1408.2	1412.7	1421.7	1430.7	1439.7	2191.6	2218.3	2245.0	6024.6
TOU MW	1042.7	1046.3	1050.0	1053.7	1057.3	1061.0	1064.7	1068.3	1072.0	1075.7	1079.3	1083.0	1062.8
EEI Gwh	1569.6	1403.6	1543.4	1487.0	1397.1	1354.6	1404.9	1410.0	1369.6	1551.7	1577.8	1637.5	17706.8
FS Gwh	675.3	584.9	627.5	593.9	385.8	374.5	389.3	391.7	381.4	603.6	696.4	719.6	6423.9
NUGS Gwh	112.1	101.7	113.2	110.1	114.4	111.2	115.5	116.1	112.9	117.3	114.0	118.4	1357.0
NUGS MW	166.6	168.0	169.4	170.8	172.2	173.6	175.0	176.4	177.8	179.2	180.6	182.0	174.3
TOTAL EIP+NUGS+FS Gwh	2357.0	2090.3	2284.2	2191.0	1897.4	1840.3	1909.7	1917.8	1863.9	2272.5	2388.0	2475.4	25487.6
TOTAL EIP+TOU+NUGS+FS MW	6547.2	6564.9	6583.2	6601.5	5469.3	5484.2	5508.8	5533.2	5557.9	6788.4	6845.6	6903.0	6198.9
PRIMARY 20 Min PEAK MW	27748.9	26250.0	24978.8	21733.6	21148.6	22480.7	23214.3	23182.8	21496.0	21547.7	24439.3	27561.0	23815.1
PRIMARY 1 hr PEAK MW	27376.9	26021.0	24695.8	21487.6	20923.6	22292.7	23044.3	23015.8	21250.0	21222.7	24135.3	27309.0	23564.5
PRIMARY Gwh	17356.9	15455.7	15652.8	13414.9	13353.6	13390.7	14112.3	14021.2	13303.2	13982.5	14770.0	16631.6	175445.3
PRIMARY LF - 20 Min	84.1	87.6	84.2	85.7	84.9	82.7	81.7	81.3	86.0	87.2	83.9	81.1	84.1
PRIMARY LF - 1 hr	85.2	88.4	85.2	86.7	85.8	83.4	82.3	81.9	86.9	88.6	85.0	81.9	85.0

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2007

BASIC 20 Min PEAK MW	35013.0	33502.0	32223.0	28930.0	27177.0	28553.0	29328.0	29322.0	27625.0	28935.0	31947.0	35194.0	30645.8
BASIC 1 hr PEAK MW	34633.0	33268.0	31934.0	28678.0	26947.0	28362.0	29155.0	29151.0	27374.0	28603.0	31637.0	34937.0	30389.9
BASIC ENERGY Gwh	20129.0	17915.0	18315.0	15935.0	15573.0	15553.0	16362.0	16278.0	15489.0	16601.0	17524.0	19515.0	205189.0
BASIC LF - 20 Min	77.1	79.6	75.9	75.8	76.2	75.2	74.8	74.1	77.2	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.9	80.1	76.6	76.5	76.8	75.7	75.2	74.5	77.9	77.2	76.3	74.6	77.1
EEI MW	3398.5	3403.9	3409.5	3415.1	2953.4	2957.9	2966.7	2975.5	2984.4	3481.6	3503.8	3526.0	3248.0
FS MW	2251.6	2258.1	2264.8	2271.6	1516.2	1520.7	1529.7	1538.7	1547.7	2351.6	2378.3	2405.0	6333.4
TOU MW	1085.5	1088.0	1090.5	1093.0	1095.5	1098.0	1100.5	1103.0	1105.5	1108.0	1110.5	1113.0	1099.3
EEI Gwh	1642.5	1468.1	1613.5	1553.9	1457.1	1412.2	1463.7	1468.0	1424.9	1614.8	1641.1	1701.0	18460.9
FS Gwh	725.6	628.3	674.0	637.7	414.2	402.0	417.8	420.2	408.9	646.5	745.3	769.6	6890.2
NUGS Gwh	113.2	102.8	114.4	111.3	115.5	112.4	116.7	117.3	114.1	118.5	115.2	119.7	1371.0
NUGS MW	168.5	169.9	171.3	172.7	174.1	175.5	176.9	178.3	179.8	181.2	182.6	184.0	176.2
TOTAL EIP+NUGS+FS Gwh	2481.4	2199.3	2401.9	2303.0	1986.9	1926.6	1998.1	2005.5	1947.9	2379.8	2501.4	2590.2	26721.9
TOTAL EIP+TOU+NUGS+FS MW	6904.1	6919.9	6936.1	6952.4	5739.2	5752.1	5773.8	5795.5	5817.4	7122.4	7175.2	7228.0	6509.7
PRIMARY 20 Min PEAK MW	28109.0	26582.1	25286.9	21977.7	21437.7	22800.8	23554.2	23526.5	21807.5	21812.7	24771.8	27966.0	24136.1
PRIMARY 1 hr PEAK MW	27729.0	26348.1	24997.9	21725.7	21207.7	22609.8	23381.2	23355.5	21556.5	21480.7	24461.8	27709.0	23880.2
PRIMARY Gwh	17647.6	15715.7	15913.0	13632.0	13586.1	13626.3	14363.8	14272.6	13541.1	14221.2	15022.5	16924.8	178466.8
PRIMARY LF - 20 Min	84.4	88.0	84.6	86.1	85.2	83.0	82.0	81.5	86.2	87.6	84.2	81.3	84.4
PRIMARY LF - 1 hr	85.5	88.8	85.6	87.1	86.1	83.7	82.6	82.1	87.2	89.0	85.3	82.1	85.3

2008

BASIC 20 Min PEAK MW	35747.0	34203.0	32897.0	29534.0	27745.0	29149.0	29939.0	29932.0	28199.0	29536.0	32610.0	35924.0	31284.6
BASIC 1 hr PEAK MW	35359.0	33965.0	32602.0	29278.0	27510.0	28953.0	29762.0	29758.0	27943.0	29197.0	32293.0	35661.0	31023.4
BASIC ENERGY Gwh	20549.0	18288.0	18697.0	16267.0	15897.0	15876.0	16701.0	16615.0	15809.0	16944.0	17886.0	19917.0	209446.0
BASIC LF - 20 Min	77.0	79.5	75.8	75.7	76.1	75.2	74.7	74.0	77.1	76.2	75.5	74.0	76.4
BASIC LF - 1 hr	77.8	80.0	76.5	76.4	76.7	75.7	75.1	74.5	77.8	77.1	76.3	74.5	77.1
EEI MW	3530.8	3535.7	3540.6	3545.6	3057.0	3060.9	3068.7	3076.5	3084.4	3604.6	3624.3	3644.0	3364.4
FS MW	2411.4	2417.7	2424.2	2430.7	1624.0	1628.5	1637.4	1646.3	1655.2	2508.2	2534.1	2560.0	6616.8
TOU MW	1115.5	1118.0	1120.5	1123.0	1125.5	1128.0	1130.5	1133.0	1135.5	1138.0	1140.5	1143.0	1129.3
EEI Gwh	1705.9	1578.6	1674.4	1612.0	1508.3	1461.5	1514.1	1518.0	1472.8	1670.4	1697.2	1757.6	19170.8
FS Gwh	775.8	695.6	720.2	681.2	442.6	429.4	446.1	448.4	436.2	688.4	792.5	817.4	7373.7
NUGS Gwh	114.4	103.9	115.6	112.5	116.8	113.6	118.0	118.6	115.3	119.8	116.5	121.0	1386.0
NUGS MW	170.3	171.7	173.2	174.6	176.0	177.4	178.9	180.3	181.7	183.2	184.6	186.0	178.2
TOTAL EIP+NUGS+FS Gwh	2596.2	2378.1	2510.2	2405.8	2067.7	2004.6	2078.2	2085.0	2024.3	2478.5	2606.1	2695.9	27930.6
TOTAL EIP+TOU+NUGS+FS MW	7228.0	7243.1	7258.5	7273.9	5982.5	5994.8	6015.5	6036.1	6056.8	7434.0	7483.5	7533.0	6795.0
PRIMARY 20 Min PEAK MW	28519.0	26959.9	25638.4	22260.1	21762.5	23154.2	23923.5	23895.9	22142.2	22102.0	25126.5	28391.0	24489.6
PRIMARY 1 hr PEAK MW	28131.0	26721.9	25343.4	22004.1	21527.5	22958.2	23746.5	23721.9	21886.2	21763.0	24809.5	28128.0	24228.4
PRIMARY Gwh	17952.8	15909.9	16186.7	13861.2	13829.3	13871.4	14622.8	14530.0	13784.7	14465.5	15279.9	17221.1	181515.3
PRIMARY LF - 20 Min	84.6	87.8	84.9	86.5	85.4	83.2	82.2	81.7	86.5	88.0	84.5	81.5	84.6
PRIMARY LF - 1 hr	85.8	88.6	85.8	87.5	86.3	83.9	82.8	82.3	87.5	89.3	85.5	82.3	85.5

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

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2009

BASIC 20 Min PEAK MW	36469.0	34894.0	33561.0	30130.0	28304.0	29736.0	30542.0	30535.0	28767.0	30130.0	33266.0	36646.0	31915.0
BASIC 1 hr PEAK MW	36073.0	34651.0	33260.0	29868.0	28064.0	29537.0	30361.0	30357.0	28505.0	29785.0	32943.0	36378.0	31648.5
BASIC ENERGY Gwh	20963.0	18657.0	19073.0	16594.0	16216.0	16195.0	17037.0	16948.0	16127.0	17284.0	18244.0	20317.0	213655.0
BASIC LF - 20 Min	77.0	79.5	75.9	75.8	76.1	75.2	74.7	74.1	77.2	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.9	80.1	76.5	76.4	76.8	75.7	75.1	74.5	77.8	77.2	76.3	74.5	77.1
EEI MW	3648.4	3652.9	3657.4	3661.9	3148.9	3152.4	3159.4	3166.3	3173.4	3715.9	3734.0	3752.0	3468.6
FS MW	2566.4	2572.7	2579.2	2585.7	1731.0	1735.5	1744.4	1753.3	1762.2	2663.2	2689.1	2715.0	6883.3
TOU MW	1145.1	1147.2	1149.3	1151.3	1153.4	1155.5	1157.6	1159.7	1161.7	1163.8	1165.9	1168.0	1156.5
EEI Gwh	1762.3	1574.0	1728.6	1663.7	1553.8	1505.4	1559.0	1562.5	1515.5	1720.4	1748.2	1809.2	19702.7
FS Gwh	823.8	713.1	764.7	723.3	470.5	456.4	474.0	476.3	463.2	729.7	839.2	865.2	7799.4
NUGS Gwh	115.6	104.9	116.8	113.6	118.0	114.8	119.2	119.8	116.5	121.0	117.7	122.2	1400.0
NUGS MW	172.2	173.6	175.0	176.5	177.9	179.4	180.8	182.2	183.7	185.1	186.6	188.0	180.1
TOTAL EIP+NUGS+FS Gwh	2701.9	2392.1	2610.2	2500.7	2142.4	2076.7	2152.2	2158.6	2095.1	2571.0	2705.1	2796.5	28902.4
TOTAL EIP+TOU+NUGS+FS MW	7532.1	7546.4	7560.9	7575.4	6211.2	6222.8	6242.2	6261.5	6281.0	7728.0	7775.6	7823.0	7063.3
PRIMARY 20 Min PEAK MW	28936.9	27347.7	26000.1	22554.5	22092.8	23513.2	24299.9	24273.5	22485.9	22401.9	25490.4	28823.0	24851.7
PRIMARY 1 hr PEAK MW	28540.9	27104.7	25699.1	22292.5	21852.8	23314.2	24118.9	24095.5	22223.9	22056.9	25167.4	28555.0	24585.2
PRIMARY Gwh	18261.2	16264.9	16462.8	14093.3	14073.7	14118.3	14884.8	14789.4	14031.8	14713.0	15538.9	17520.5	184752.7
PRIMARY LF - 20 Min	84.8	88.5	85.1	86.8	85.6	83.4	82.3	81.9	86.7	88.3	84.7	81.7	84.9
PRIMARY LF - 1 hr	86.0	89.3	86.1	87.8	86.6	84.1	82.9	82.5	87.7	89.7	85.8	82.5	85.8

2010

BASIC 20 Min PEAK MW	37197.0	35591.0	34232.0	30733.0	28870.0	30331.0	31153.0	31146.0	29343.0	30733.0	33932.0	37380.0	32553.4
BASIC 1 hr PEAK MW	36794.0	35343.0	33925.0	30465.0	28626.0	30127.0	30969.0	30965.0	29076.0	30381.0	33603.0	37107.0	32281.8
BASIC ENERGY Gwh	21382.0	19030.0	19455.0	16926.0	16541.0	16519.0	17378.0	17288.0	16450.0	17631.0	18610.0	20724.0	217934.0
BASIC LF - 20 Min	77.0	79.5	75.8	75.7	76.1	75.2	74.7	74.0	77.1	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.8	80.0	76.5	76.4	76.7	75.7	75.1	74.5	77.8	77.1	76.3	74.5	77.1
EEI MW	3756.4	3760.9	3765.4	3769.9	3232.9	3236.4	3243.4	3250.3	3257.4	3823.9	3842.0	3860.0	3566.6
FS MW	2721.4	2727.7	2734.2	2740.7	1838.0	1842.5	1851.4	1860.3	1869.2	2818.2	2844.1	2870.0	7141.3
TOU MW	1170.1	1172.2	1174.3	1176.3	1178.4	1180.5	1182.6	1184.7	1186.8	1188.8	1190.9	1193.0	1181.6
EEI Gwh	1814.1	1619.8	1778.7	1711.7	1595.6	1545.8	1600.8	1604.2	1555.9	1768.8	1798.5	1860.9	20254.7
FS Gwh	871.9	754.7	809.2	765.3	498.4	483.4	501.9	504.2	490.2	771.0	886.0	913.0	8249.1
NUGS Gwh	116.8	106.1	118.0	114.8	119.2	116.0	120.5	121.1	117.8	122.3	118.9	123.5	1415.0
NUGS MW	174.0	175.4	176.9	178.4	179.8	181.3	182.7	184.2	185.6	187.1	188.5	190.0	182.0
TOTAL EIP+NUGS+FS Gwh	2802.9	2480.7	2706.0	2591.8	2213.2	2145.2	2223.1	2229.5	2163.8	2662.0	2803.3	2897.3	29918.8
TOTAL EIP+TOU+NUGS+FS MW	7821.9	7836.2	7850.8	7865.3	6429.1	6440.7	6460.1	6479.5	6499.0	8018.0	8065.5	8113.0	7323.3
PRIMARY 20 Min PEAK MW	29375.1	27754.9	26381.2	22867.6	22440.9	23890.3	24693.0	24666.5	22844.0	22714.9	25866.5	29267.0	25230.1
PRIMARY 1 hr PEAK MW	28972.1	27506.9	26074.2	22599.6	22196.9	23686.3	24509.0	24485.5	22577.0	22362.9	25537.5	28994.0	24958.5
PRIMARY Gwh	18579.1	16549.3	16749.1	14334.2	14327.8	14373.8	15154.8	15058.5	14286.2	14969.0	15806.7	17826.7	188015.2
PRIMARY LF - 20 Min	85.0	88.7	85.3	87.1	85.8	83.6	82.5	82.1	86.9	88.6	84.9	81.9	85.1
PRIMARY LF - 1 hr	86.2	89.5	86.3	88.1	86.8	84.3	83.1	82.7	87.9	90.0	86.0	82.6	86.0

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

October 31,1991

2011

BASIC 20 Min PEAK MW	37915.0	36277.0	34890.0	31323.0	29425.0	30913.0	31750.0	31742.0	29904.0	31321.0	34580.0	38093.0	33177.8
BASIC 1 hr PEAK MW	37504.0	36024.0	34578.0	31051.0	29175.0	30706.0	31563.0	31558.0	29632.0	30962.0	34245.0	37815.0	32901.1
BASIC ENERGY Gwh	21792.0	19395.0	19827.0	17250.0	16857.0	16835.0	17709.0	17617.0	16763.0	17966.0	18964.0	21117.0	222092.0
BASIC LF - 20 Min	77.0	79.5	75.9	75.8	76.1	75.2	74.7	74.1	77.2	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.9	80.1	76.5	76.4	76.8	75.7	75.1	74.5	77.8	77.2	76.3	74.5	77.1
EEI MW	3864.4	3868.8	3873.3	3877.8	3316.7	3320.1	3327.0	3333.9	3340.9	3931.3	3949.1	3967.0	3664.2
FS MW	2876.4	2882.7	2889.2	2895.7	1945.0	1949.5	1958.4	1967.3	1976.2	2973.2	2999.1	3025.0	7398.9
TOU MW	1195.1	1197.2	1199.2	1201.3	1203.4	1205.5	1207.6	1209.7	1211.7	1213.8	1215.9	1218.0	1206.5
EEI Gwh	1865.9	1665.7	1828.7	1759.5	1637.2	1586.0	1642.3	1645.7	1596.0	1816.9	1848.3	1912.0	20804.2
FS Gwh	919.9	796.2	853.7	807.3	526.3	510.4	529.8	532.1	517.2	812.3	932.8	960.8	8698.8
NUGS Gwh	117.6	106.7	118.8	115.5	120.0	116.7	121.2	121.8	118.5	123.1	119.7	124.3	1424.0
NUGS MW	175.8	177.3	178.8	180.2	181.7	183.2	184.7	186.1	187.6	189.1	190.5	192.0	183.9
TOTAL EIP+NUGS+FS Gwh	2903.5	2568.7	2801.2	2682.4	2283.5	2213.2	2293.3	2299.6	2231.7	2752.2	2900.7	2997.0	30927.1
TOTAL EIP+TOU+NUGS+FS MW	8111.7	8126.0	8140.5	8155.0	6646.8	6658.3	6677.7	6697.0	6716.4	8307.4	8354.6	8402.0	7582.8
PRIMARY 20 Min PEAK MW	29803.4	28151.0	26749.5	23168.0	22778.2	24254.7	25072.3	25045.0	23187.5	23013.6	26225.3	29691.0	25595.0
PRIMARY 1 hr PEAK MW	29392.4	27898.0	26437.5	22896.0	22528.2	24047.7	24885.3	24861.0	22915.5	22654.6	25890.3	29413.0	25318.3
PRIMARY Gwh	18888.5	16826.3	17025.8	14567.6	14573.5	14621.8	15415.7	15317.4	14531.3	15213.8	16063.3	18120.0	191164.9
PRIMARY LF - 20 Min	85.2	88.9	85.5	87.3	86.0	83.7	82.6	82.2	87.0	88.9	85.1	82.0	85.3
PRIMARY LF - 1 hr	86.4	89.8	86.6	88.4	86.9	84.4	83.3	82.8	88.1	90.3	86.2	82.8	86.2

2012

BASIC 20 Min PEAK MW	38609.0	36941.0	35529.0	31897.0	29963.0	31478.0	32331.0	32322.0	30450.0	31893.0	35212.0	38788.0	33784.4
BASIC 1 hr PEAK MW	38191.0	36684.0	35211.0	31619.0	29709.0	31267.0	32140.0	32134.0	30174.0	31527.0	34870.0	38505.0	33502.6
BASIC ENERGY Gwh	22191.0	19749.0	20189.0	17565.0	17165.0	17142.0	18032.0	17939.0	17069.0	18293.0	19309.0	21502.0	226145.0
BASIC LF - 20 Min	77.0	79.5	75.8	75.7	76.1	75.2	74.7	74.0	77.1	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.8	80.0	76.5	76.4	76.7	75.7	75.1	74.5	77.8	77.1	76.3	74.5	77.1
EEI MW	3971.4	3975.8	3980.3	3984.8	3399.7	3403.1	3410.0	3416.9	3423.9	4038.3	4056.1	4074.0	3761.2
FS MW	3031.4	3037.7	3044.2	3050.7	2052.0	2056.5	2065.4	2074.3	2083.2	3128.2	3154.1	3180.0	7654.3
TOU MW	1219.8	1221.7	1223.5	1225.3	1227.2	1229.0	1230.8	1232.7	1234.5	1236.3	1238.2	1240.0	1229.9
EEI Gwh	1917.2	1772.2	1878.2	1806.9	1678.4	1625.9	1683.6	1687.0	1635.9	1864.8	1898.1	1963.2	21411.5
FS Gwh	968.0	867.7	898.2	849.4	554.2	537.4	557.7	560.0	544.2	853.5	979.5	1008.6	9178.4
NUGS Gwh	119.1	108.1	120.4	117.1	121.6	118.3	122.9	123.5	120.1	124.7	121.3	126.0	1443.0
NUGS MW	177.7	179.2	180.6	182.1	183.6	185.1	186.6	188.1	189.5	191.0	192.5	194.0	185.8
TOTAL EIP+NUGS+FS Gwh	3004.4	2748.1	2896.9	2773.4	2354.2	2281.7	2364.1	2370.4	2300.2	2843.0	2998.9	3097.7	32032.9
TOTAL EIP+TOU+NUGS+FS MW	8400.3	8414.4	8428.6	8442.9	6862.5	6873.7	6892.8	6912.0	6931.1	8593.8	8640.9	8688.0	7840.1
PRIMARY 20 Min PEAK MW	30208.7	28526.6	27100.4	23454.1	23100.6	24604.3	25438.1	25410.0	23518.9	23299.2	26571.1	30100.0	25944.3
PRIMARY 1 hr PEAK MW	29790.7	28269.6	26782.4	23176.1	22846.6	24393.3	25247.1	25222.0	23242.9	22933.2	26229.1	29817.0	25662.5
PRIMARY Gwh	19186.6	17000.9	17292.1	14791.6	14810.8	14860.3	15667.9	15568.6	14768.8	15450.0	16310.1	18404.3	194112.1
PRIMARY LF - 20 Min	85.4	88.7	85.8	87.6	86.2	83.9	82.8	82.4	87.2	89.1	85.3	82.2	85.4
PRIMARY LF - 1 hr	86.6	89.5	86.8	88.6	87.1	84.6	83.4	83.0	88.3	90.6	86.4	83.0	86.3

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

October 31,1991

2013

BASIC 20 Min PEAK MW	39262.0	37564.0	36128.0	32433.0	30467.0	32007.0	32872.0	32863.0	30959.0	32425.0	35798.0	39434.0	34351.0
BASIC 1 hr PEAK MW	38836.0	37303.0	35804.0	32151.0	30208.0	31792.0	32678.0	32672.0	30678.0	32054.0	35451.0	39146.0	34064.4
BASIC ENERGY Gwh	22563.0	20080.0	20527.0	17858.0	17451.0	17427.0	18333.0	18237.0	17352.0	18596.0	19629.0	21857.0	229910.0
BASIC LF - 20 Min	76.7	79.2	75.6	75.6	76.0	75.1	74.6	74.0	77.1	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.6	79.8	76.3	76.2	76.6	75.5	75.0	74.4	77.8	77.1	76.3	74.5	77.0
EEI MW	4078.4	4082.8	4087.3	4091.8	3482.7	3486.1	3493.0	3499.9	3506.9	4145.3	4163.1	4181.0	3858.2
FS MW	3186.4	3192.7	3199.2	3205.7	2159.0	2163.5	2172.4	2181.3	2190.2	3283.2	3309.1	3335.0	7907.2
TOU MW	1241.7	1243.3	1245.0	1246.7	1248.3	1250.0	1251.7	1253.3	1255.0	1256.7	1258.3	1260.0	1250.8
EEI Gwh	1968.4	1756.4	1927.6	1854.2	1719.5	1665.7	1724.7	1728.1	1675.7	1912.6	1947.8	2014.3	21895.2
FS Gwh	1016.0	879.4	942.7	891.4	582.1	564.4	585.6	587.9	571.2	894.8	1076.3	1056.4	9598.2
NUGS Gwh	120.4	109.3	121.6	118.3	122.9	119.5	124.1	124.8	121.3	126.0	122.6	127.3	1458.0
NUGS MW	179.5	181.0	182.5	184.0	185.5	187.0	188.5	190.0	191.5	193.0	194.5	196.0	187.8
TOTAL EIP+NUGS+FS Gwh	3104.8	2745.1	2992.0	2864.0	2424.6	2349.7	2434.3	2440.8	2368.2	2933.4	3096.7	3197.8	32951.3
TOTAL EIP+TOU+NUGS+FS MW	8686.0	8699.8	8714.0	8728.2	7075.5	7086.6	7105.6	7124.5	7143.6	8878.2	8925.0	8972.0	8094.9
PRIMARY 20 Min PEAK MW	30576.1	28864.2	27414.0	23704.8	23391.5	24920.4	25766.4	25738.5	23815.4	23546.8	26872.9	30462.0	26256.1
PRIMARY 1 hr PEAK MW	30150.1	28603.2	27090.0	23422.8	23132.5	24705.4	25572.4	25547.5	23534.4	23175.8	26525.9	30174.0	25969.5
PRIMARY Gwh	19458.1	17334.9	17535.0	14994.0	15026.4	15077.3	15898.6	15796.2	14983.8	15662.6	16532.4	18659.1	196958.5
PRIMARY LF - 20 Min	85.5	89.4	86.0	87.9	86.3	84.0	82.9	82.5	87.4	89.4	85.4	82.3	85.6
PRIMARY LF - 1 hr	86.7	90.2	87.0	88.9	87.3	84.8	83.6	83.1	88.4	90.8	86.6	83.1	86.6

2014

BASIC 20 Min PEAK MW	39912.0	38187.0	36728.0	32972.0	30973.0	32540.0	33420.0	33412.0	31476.0	32967.0	36398.0	40095.0	34923.3
BASIC 1 hr PEAK MW	39479.0	37921.0	36398.0	32686.0	30711.0	32321.0	33223.0	33217.0	31190.0	32590.0	36044.0	39802.0	34631.8
BASIC ENERGY Gwh	22939.0	20415.0	20870.0	18157.0	17743.0	17720.0	18640.0	18543.0	17644.0	18909.0	19960.0	22226.0	233766.0
BASIC LF - 20 Min	76.8	79.3	75.7	75.6	76.0	75.1	74.6	74.0	77.1	76.3	75.6	74.0	76.4
BASIC LF - 1 hr	77.6	79.8	76.3	76.3	76.6	75.6	75.1	74.4	77.8	77.2	76.3	74.6	77.1
EEI MW	4185.4	4189.8	4194.3	4198.8	3565.7	3569.2	3576.0	3582.9	3589.9	4252.3	4270.1	4288.0	3955.2
FS MW	3341.4	3347.7	3354.2	3360.7	2266.0	2270.5	2279.4	2288.3	2297.2	3438.2	3464.1	3490.0	8139.2
TOU MW	1261.7	1263.3	1265.0	1266.7	1268.3	1270.0	1271.7	1273.3	1275.0	1276.7	1278.3	1280.0	1270.8
EEI Gwh	2019.7	1801.8	1977.1	1901.6	1760.7	1705.6	1765.9	1769.3	1715.6	1960.5	1997.5	2065.4	22440.6
FS Gwh	1064.1	920.9	987.2	933.4	610.0	591.4	613.5	615.8	598.2	936.1	1073.1	1104.2	10047.9
NUGS Gwh	121.5	110.3	122.8	119.4	124.0	120.7	125.3	126.0	122.5	127.2	123.7	128.5	1472.0
NUGS MW	181.4	182.9	184.4	185.9	187.4	188.9	190.4	191.9	193.5	195.0	196.5	198.0	189.7
TOTAL EIP+NUGS+FS Gwh	3205.3	2833.0	3087.2	2954.4	2494.7	2417.8	2504.7	2511.1	2436.2	3023.8	3194.2	3298.0	33960.5
TOTAL EIP+TOU+NUGS+FS MW	8969.9	8983.7	8997.9	9012.1	7287.4	7298.6	7317.5	7336.4	7355.6	9162.2	9209.0	9256.0	8348.9
PRIMARY 20 Min PEAK MW	30942.2	29203.3	27730.1	23939.9	23685.6	25241.5	26102.5	26075.6	24120.4	23804.8	27188.9	30839.0	26574.5
PRIMARY 1 hr PEAK MW	30509.2	28937.3	27400.1	23673.9	23423.6	25022.5	25905.5	25880.6	23834.4	23427.8	26834.9	30546.0	26283.0
PRIMARY Gwh	19733.7	17582.0	17782.8	15202.5	15248.3	15302.2	16135.4	16031.9	15207.8	15885.2	16765.8	18928.0	199805.5
PRIMARY LF - 20 Min	85.7	89.6	86.2	88.1	86.5	84.2	83.1	82.6	87.6	89.7	85.6	82.5	85.8
PRIMARY LF - 1 hr	86.9	90.4	87.2	89.2	87.5	84.9	83.7	83.3	88.6	91.1	86.8	83.3	86.8

TOTAL SYSTEM BASIC AND PRIMARY DEMANDS - 1991 UPDATE

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2015

BASIC 20 Min PEAK MW	40609.0	38855.0	37370.0	33550.0	31516.0	33111.0	34007.0	33999.0	32030.0	33548.0	37039.0	40802.0	35536.3
BASIC 1 hr PEAK MW	40169.0	38584.0	37035.0	33258.0	31249.0	32888.0	33806.0	33801.0	31739.0	33164.0	36680.0	40504.0	35239.8
BASIC ENERGY Gwh	23342.0	20774.0	21237.0	18476.0	18056.0	18032.0	18969.0	18870.0	17955.0	19244.0	20313.0	22620.0	237888.0
BASIC LF - 20 Min	76.9	79.4	75.8	75.7	76.1	75.1	74.6	74.0	77.1	76.2	75.5	73.9	76.4
BASIC LF - 1 hr	77.7	79.9	76.4	76.3	76.7	75.6	75.0	74.4	77.7	77.1	76.2	74.4	77.1
EEI MW	4292.4	4296.8	4301.3	4305.8	3648.7	3652.2	3659.0	3665.9	3672.9	4359.3	4377.1	4395.0	4052.2
FS MW	3496.4	3502.7	3509.2	3515.7	2373.0	2377.5	2386.4	2395.3	2404.2	3593.2	3619.1	3645.0	8411.2
TOU MW	1281.7	1283.3	1285.0	1286.7	1288.3	1290.0	1291.7	1293.3	1295.0	1296.7	1298.3	1300.0	1290.8
EEI Gwh	2070.9	1847.2	2026.6	1949.0	1801.9	1745.4	1807.1	1810.5	1755.4	2008.4	2047.3	2116.5	22986.1
FS Gwh	1112.1	962.5	1031.7	975.5	637.9	618.4	641.4	643.7	625.2	977.4	1119.8	1152.0	10497.5
NUGS Gwh	122.7	111.4	123.9	120.6	125.2	121.8	126.5	127.2	123.7	128.5	124.9	129.7	1486.0
NUGS MW	183.2	184.7	186.2	187.8	189.3	190.8	192.4	193.9	195.4	196.9	198.5	200.0	191.6
TOTAL EIP+NUGS+FS Gwh	3305.7	2921.1	3182.2	3045.1	2565.0	2485.7	2575.0	2581.3	2504.2	3114.3	3291.9	3398.1	34969.5
TOTAL EIP+TOU+NUGS+FS MW	9253.7	9267.5	9281.7	9296.0	7499.3	7510.5	7529.5	7548.4	7567.5	9446.1	9493.0	9540.0	8602.8
PRIMARY 20 Min PEAK MW	31355.4	29587.5	28088.3	24254.0	24016.7	25600.6	26477.5	26450.6	24462.5	24101.9	27545.9	31262.0	26933.6
PRIMARY 1 hr PEAK MW	30915.4	29316.5	27753.3	23962.0	23749.7	25377.6	26276.5	26252.6	24171.5	23717.9	27186.9	30964.0	26637.0
PRIMARY Gwh	20036.2	17852.9	18054.7	15430.9	15491.0	15546.3	16394.1	16288.7	15450.7	16129.7	17021.1	19221.9	202918.3
PRIMARY LF - 20 Min	85.9	89.8	86.4	88.4	86.7	84.3	83.2	82.8	87.7	90.0	85.8	82.6	86.0
PRIMARY LF - 1 hr	87.1	90.6	87.4	89.4	87.7	85.1	83.9	83.4	88.8	91.4	87.0	83.4	87.0

APPENDIX II

SCENARIOS FOR DEMAND MANAGEMENT INCLUDING FUEL SWITCHING AND STANDARDS

APPENDIX II

(NOTE: See original report for Appendices A, B and C)

SCENARIOS FOR DEMAND MANAGEMENT INCLUDING FUEL SWITCHING AND STANDARDS

Prepared By: Energy Economics Section
Economics & Forecasts Division

Date: July 31, 1991

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Appendix A: Technologies Eligible for Standards

Appendix B: Technologies Covered by EEI Programs not Amenable to Standards

Appendix C: Detailed Results of 5 Cases by Sector

1.0 INTRODUCTION

This report examines 5 cases for demand management including a combination of programs from electrical efficiency improvements (EEI), efficiency standards (STD) and fuel switching (FS). The EEI analysis in this report is based on the 1990 Load Forecast Report (Exhibit 9); the savings identified from these five cases can be used to reduce the 1990 Basic Load Forecast. The impact of standards (53 MW) assumed in the 1990 Load Forecast has not been netted out in the results presented in Section 6. All estimates presented for the year 2000 in this report are 16-hour winter peak savings at the generation level.

2.0 ELECTRICAL EFFICIENCY IMPROVEMENTS

In the 1990 Load Forecast, about 6,400 MW of potential induced EEI was identified by the year 2000 from electrical efficiency improvement (EEI) programs. Allowing for a reduction in program results due to standards already factored into the 1990 Basic Load Forecast, about 1,947 MW are expected to be saved by the year 2000 from various EEI programs in the residential, commercial and industrial sectors (Exhibit 9). Table 1 summarizes the potential and attainable induced EEI in the year 2000 for the residential, commercial and industrial sectors assumed in the 1990 Load Forecast. The detailed analysis of the EEI savings was presented in the load forecast background report entitled "Net Load Impact Forecast of Demand Management Programs" (Exhibit 76).

Table 1: Base Case Potential and Attainable Induced EEI by Year 2000

Sector	Potential Induced EEI (MW)	Penetration Rate (%)	Attainable Induced EEI (MW)	Net Impact After Standards (MW)
Residential	2,500	23	580	534
Commercial	2,980	33	1,000	993
Industrial	900	47	420	420
All Sectors	6,380	31	2,000	1,947

Note: Totals may not add up due to rounding.

Source: Economics & Forecasts Division

It should be noted that once efficiency standards and fuel switching are considered in the analysis, the potential and attainable EEI program results will be lower. The interaction effects between EEI, STD and FS will be addressed in the next few sections.

3.0 EFFICIENCY STANDARDS

One way to achieve higher penetration of the EEI savings is through efficiency standards. However, not all the EEI measures can easily be mandated. Of the EEI analyzed in the 1990 Load Forecast, a review was undertaken to determine which EEI measures are reasonable candidates for efficiency standards. Table 2 summarizes the EEI measures which can be mandated by higher efficiency standards by the Ontario government. The efficiency levels to be mandated are assumed to be the same as those in the EEI programs considered in the 1990 Load Forecast. Appendix A provides details of the efficiency improvement assumptions under mandation by technology.

The EEI measures which are difficult to mandate will continue to be covered by Ontario Hydro EEI programs (see Table 3). Appendix B provides details of the efficiency improvement assumptions for these measures by technology. All these EEI measures were already presented in Appendices A2, B2 and C2 of Exhibit 76.

In the residential sector, EEI measures considered for efficiency standards are technologies which can easily be regulated by the government, such as replacement windows and doors, building codes of new houses and various home appliances. EEI measures which are difficult to regulate (for instance, retrofit measures such as better wall and basement insulation, installing heat pumps and using compact fluorescent lamps) will continue to be addressed by Ontario Hydro EEI programs in this analysis.

In the commercial sector, EEI measures considered for efficiency standards are characterized by savings that can be consistently measured, and not necessarily dependent on building use. For example, all commercial buildings could adopt T8 lamp systems if they were to become the standard for fluorescent light fixtures. Technologies that are performance based (e.g. air balancing HVAC system) or characterized by a wide range of savings dependent on building use (e.g. automatic control system) will continue to be addressed by Ontario Hydro EEI programs in this report.

In the industrial sector, EEI measures considered for efficiency standards include motors, lighting and refrigeration. These are technologies which can be replaced with the same technology at a higher efficiency. The remaining EEI technologies in the industrial sector will continue to be addressed by Ontario Hydro EEI programs in this analysis.

Based on this analysis, of the 6,400 MW of potential induced EEI identified in the 1990 Load Forecast, about 2,640 MW of savings can be mandated under efficiency standards were the standards to come into effect in 1991. Of these 2,640 MW, about 940 MW is expected to come from the residential sector, 1,580 MW from the commercial sector and 130 MW from the industrial sector. It should be noted that once fuel switching is considered, the potential available to both EEI and STD will be reduced. The offsetting effects of FS on EEI and STD will be discussed in the next section.

4.0 FUEL SWITCHING

In this report, fuel switching was considered for space and water heating in the residential sector and space heating in the commercial sector. In the residential sector, assuming that 50 percent of the existing and new homes has natural gas available to them, about one-third of the existing electrically heated houses is available for conversion to natural gas space heating and about one-third of the existing electric water heaters is available for conversion to natural gas water heating. For new residential segments, about half of the new space and water heating load is available for fuel switching to natural gas.

In the commercial sector, assuming that natural gas is available to all existing and new electrically heated buildings, about 25 percent of the existing electrically heated buildings and all new electrically heated buildings are eligible for fuel switching. For details of the eligible market assumptions for fuel switching, please refer to a background report entitled "Fuel Switching Potential in Ontario by Year 2000". In that report, FS potential of about 3,130 MW was identified in the residential and commercial sectors. Of this potential, 1,765 MW are expected to come from the residential sector and 1,356 MW from the commercial sector.

Because of fuel switching, the load which is otherwise available for EEI or STD programs is totally displaced. The offsetting effects of fuel switching presented below are based on the potential induced EEI estimated for the 1990 Load Forecast. In estimating the offsetting effects, it is assumed that no EEI or STD programs will be in competition with FS programs. For each customer, fuel switching will dominate where economic. That is, once a customer is identified as a candidate for fuel switching, the definition stays the same and this customer is no longer eligible for space and water heating EEI programs during the forecast horizon in this analysis. Table 4 summarizes the offsetting effects of fuel switching on efficiency improvements and standards.

Table 4: Summary of Offsetting Effects

Segment	FS Potential	EEI Potential Before FS	Offsetting Effects of FS on EEI Potential	EEI Potential After FS	EEI not Covered by STD	EEI Covered by STD	Total Potential EEI & FS
Residential	1,770	2,500	710	1,790	1,130	670	3,560
Commercial	1,360	2,980	310	2,670	1,170	1,500	4,030
Industrial	0	900	0	900	770	130	900
Total	3,120	6,380	1,020	5,360	3,070	2,300	8,480

Notes: Totals may not add up due to rounding

Source: Energy Economics Section, Economics and Forecasts Division

After taking fuel switching into consideration, the potential induced EEI is reduced to about 5,400 MW from 6,400 MW. Of the 5,400 MW potential, about 2,300 MW are covered by efficiency standards. In total, the potential for EEI, STD and FS potential is expected to reach almost 8,500 MW by the 2000. This is the basis from which five cases were constructed for sensitivity analysis in this report using a combination of EEI, STD and FS programs in the Ontario market place.

5.0 DESCRIPTION OF CASES

This section discusses the five cases considered in this report involving a combination of EEI, STD and FS programs. The five cases are summarized as follows:

Case A: Only EEI and FS programs are considered in this case. Ontario Hydro offers EEI programs as assumed in the 1990 Load Forecast. In addition, Ontario Hydro offers FS programs in the residential and commercial sectors, assuming the same penetration for FS as expected for EEI in those segments.

Case B: EEI, STD and FS are considered in this case. For measures not covered by standards and fuel switching, Ontario Hydro offers EEI programs as assumed in the 1990 Load Forecast. For EEI measures where standards can be applied, standards are set at 50 percent of the economic EEI savings above those assumed in the 1990 Load Forecast commencing in 1995. Between 1995 and 2000, these standards are supplemented by Ontario Hydro programs to attain 50 percent penetration of the

remaining savings not covered by efficiency standards. Prior to 1995, Ontario Hydro offers programs for the EEI measures covered by standards. In addition, mandated fuel switching is applied to the new residential segment starting in 1995. Prior to 1995, Ontario Hydro offers programs for fuel switching in this segment. For the existing residential and the existing and new commercial segments, Ontario Hydro offers programs for fuel switching during the forecast horizon.

Case C: All programs are similar to Case B, except mandated fuel switching programs are applied to the new commercial segment as well.

Although not the basis of Case C, it may be preferable to achieve a significant amount of fuel switching in new commercial construction using the mandation of ASHRAE 90.1 rather than the blanket banning of the use of electricity for space heating where gas is available.

Case D: All programs are similar to Case C, except for standards the efficiency levels is set at 100 percent of the economic EEI savings above those assumed in the 1990 Load Forecast.

Case E: All programs are similar to Case D, except for fuel switching the mandation is applied to all existing and new residential and commercial segments.

6.0 RESULTS

Table 5 summarizes the results of the five cases described in Section 5. Using a combination of EEI, STD and FS programs, the savings range from 2,650 MW in Case A, to 3580 MW in Case C, to 4,700 MW in Case E. The additional savings which can be obtained from these cases on top of the 1947 MW of EEI savings assumed in the 1990 Load Forecast range from about 700 MW in Case A, to about 1,630 MW in Case C, to about 2,750 MW in Case E. Depending on the program mix, the contribution of EEI, STD and FS varies between cases and sectors. For details of the results by sector, please refer to the tables presented in Appendix C.

Table 2

Technologies Eligible for Standards

Residential Sector

Doors
Windows
R-2000 Houses
Refrigerators
Freezers
Clothes Washers
Dish Washers
Ovens
Showerheads
High Efficiency Incandescent Lamp

Commercial Sector

Compact Fluorescent Lamp
T8 Fluorescent Lamp with Electronic Ballast
High Efficiency Luminaires
Motors
Windows/Window Film
Water Heating Improvements
Heat Recovery Ventilators
Appliances: Refrigerators, Freezers,
Clothes Washers, Clothes Dryers,
and Ovens
Energy Efficient Streetlighting

Industrial Sector

Manufacturing Industry
- Motors
- Lighting
- Refrigeration System

Source: Selected from options described in "Net Load Impact Forecast of Demand Management Programs" (Exhibit 76). For details see Appendix A in this report.

Table 3

Technologies Covered by EEI Programs not Amenable to Standards

Residential Sector

Air Sealing Measures
Ceiling/Floor Insulation
Wall Insulation
Basement Insulation
Heat Pumps
Moisture Sensor Dryers
Water Heater Tank Wrap
Water Heater Heat Trap
Compact Fluorescent Lamp
EEI Technologies in the Agricultural Segment

Commercial Sector

Lighting Redesign
Automatic Lighting Control
Air Balance Fan System/Water
Balance Pump System
Building Automation System
Infiltration Improvements
Ground Source Heat Pump
Winter Free Cooling

Industrial Sector

Manufacturing Industry
- Variable Frequency Drives
- Hydraulic Drives
- Optimization of Fans, Pumps, and Compressors
- Heat Pumps
- Energy System Controls & Process Optimization
- Electric Steel-Making

Mining Industry
- Various Technologies

Source: Selected from options described in "Net Load Impact Forecast of Demand Management Programs" (Exhibit 76). For details see Appendix B in this report.

TABLE 5

SUMMARY OF RESULTS

YEAR 2000 ESTIMATES (in MW)

	POTENTIAL			ONTARIO ENERGY EFFICIENCY					TOTAL		
				FUEL SWITCHING		ELECTRICAL EFFICIENCY IMPROVEMENTS					
							PROGRAMS				
	TOTAL EEI	EEI NOT COVERED BY STD	FS	MANDATED	PROGRAMS	STANDARDS	END USES ALSO AFFECTED BY STANDARDS*	END USES NOT AFFECTED BY STANDARDS	EEI	FS	EEI & FS
CASE A	5360	5360	3120	0	870	0	0	1790	1790	870	2650
CASE B'	5360	3070	3120	280	790	690	540	1010	2230	1060	3300
CASE C	5360	3070	3120	750	600	690	540	1010	2230	1350	3580
CASE D	5360	3070	3120	750	600	1370	200	1010	2580	1350	3920
CASE E	5360	3070	3120	1870	250	1370	200	1010	2580	2120	4700

* includes MWs from ramp-up to 1995 and top-up after 1995

Notes: (1) EEI denotes electrical efficiency improvements; FS denotes fuel switching; STD denotes efficiency standards.
(2) Mandated EEI & FS commencing in 1995.
(3) Estimates are 16-hour winter peak savings, at generation level.
(4) Totals may not add up due to rounding.
(5) For detailed estimates by sector, see Appendix C1 - C5.

Source: Energy Economics Section, Economics & Forecasts Division